

Research and project circular assessment visited city power,

Student St Peace college company education

Career outcome

Portfolio evidence low practice assessment engineer electrical, ca

Student name tshingombe:

Content

1. **Scope: research implementation framework study trade theory practice engineering study time** table assessment allocation implementation framework regulatory in government. City power and Eskom training center development infrastructure support training train training experimental student case study. Time table allocation research integrity subject outcome more. Department education dheth DBE and council trade assessment integrate

1.2.Abstract: knowledge student case study engineering design analysis investigation field: tendered time table trade ask factor in company overview in city power ,research experimental trade theory research training knowledge city power municipality: job Gauteng city approved I in power electric metering house home basic,

Join venture government development Eskom commission entrepreneurs.

Labor health inspector electric compliance merest manufacture.

Saps electric engineering supply.sandf mil development system defense environment STD physical company security close tendered required safety security electric factor

1.3 purpose: overview in developing company tendered city power supply: Engineering electrical case study

1.4. Requirements,

Engineering electrical training time table integrity subject outcome theory license trade .license practice trade .anted test ride panel warming and learning level electric principal license.

Development subject written assessment circular time table self assessment peer assessment class work written projection case study anted module week student

1.5. Task.

Ask answers: theory practice visited plant operations experimental assessor in workplace labor.

Questions asked analyze overview on subject working in developing training company, answers responsibility sector appropriate sole Consol working

Attendance was the factory trade theory regularity and irregularity in sector find material design in classes and sector find means industrial company relate manufacture majority and minority in power plant that means to Create a system to support the training. And support to attendance learner in power city more job opportunities.

1.6. Task

Ask questions power to integrate sector training was satisfactory in CVS to gate information for training

Power city metering customer need to trade customer technology outcome technology module trade theory education technology trade theory power education circular customer instruction metering customer service energy sale buyer energies electric

1.7. Step.

Need to cost customer power factor theory company customer supply need tax value trade theory consumer supply appliance electric metering cost maximum demand trade theory rate :

Technology invoice customer service energy to make system projection engineering trade theory implementation in demand factor in power city trade supply customer power factor to working training. Question answers overview.

Cost home house city appliance electric rate . Geyser metering training tree phase, single phase metering asking to be implemented time table allocation trade theory

1.8 Operational support rendered

Government labor.

Government industrial.

To compliance Labor: electric power factor test inspection compliance.

Time table allocation**Relation education labor technology****Test installation Electric metering single phase .three-phase test trade certificate coca.****Checking inspection safety health****Machinery occupation health test****Design inspection**

Description	Unit yes or not
<p>Tender: supplies saps development load company manufacture in city power Saps student Time: information management system, performance system development Tom engineering</p> <p>St peace college Afric instituts police Practice work Reg : C0700401099 Sars vat :9237228238 Sasseta number: accreditation:111999691949 CHIETA : national certificate in electrical engineering level2,3,4.. Electrical infrastructure and building skills,electrical and building skills, electricak and control panel wiring, Merseta:17-QA/ACC/1311/17.mexhatronics level 3,3,air conditioning refrigerator vantilatiin fitter welding control instrument HVAC, hydraulic,, Nated n2,6,, mict ACC/2014/07/3188.. Computer NQF level, info technology systems,computer I'd exam</p> <p>Saqa n diplomat;I'd 201911130002 Learner faculty CHIETA.sutudent certificate number:COM182609001. ID:2100002023812. I'd:2004007064381. Admission permit and examination time table.engineering study.50110002..</p> <p>External exam: I'd number instituts college</p> <p>RegNo:2013/034490/07 Dhet no:2019/FE07/028 Dhet exam No:DDP1220/19/00130 Merseta No:17-QA/ACc/1250/16</p>	<p>-47.2.requirement n diplomat engineering. ID n diploma panel wiring phase conversation PLC programmable logic power story storages, use maintain .graphic diagram design, St peace college outcome career generation power station and saqa award degree diplomat continue supplementary assessment student subject choose trascrip record no meeting engineering electrical diplomat dhet . Log activities company city power implementation visited day field manufacture technologies trade. Training</p> <p>- Interpretation drawing electric code graphic. Purpose. Assessment: explanatory electrical plan create electrical plant, Content, with is purpose benefit of electrical, metering city power and St Peace college workshop</p> <p>- How to draft an electrical. - Tip for making electrical plan, interconnection of different component and fixture to the system .in training cooperation. Visited</p> <p>- power line with details such as size voltage, rating, power transformer and winding, the main switch breaker and fused switch, - draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pal building., tips for making electrical furniture light switches and electrical outlet, - Plan for additional outlets renovation, Amount table Lampe, yea, later, appliance wiring plan, -electrical plan legend Calling mounted light, duplex receptacle, telephone outlet switch. - Basic electrical plans, - Patients room electrical plan create your electric plan firm a patient, Basement wiring plan --when listings out item such a feeder breakers and wire size, for particular project piece of distribution equipment, Intern of electrical distribution, -schedules are often included switch board and panel board, drawing to list number of circuit</p>

<p>External exam: Afric trading Sasseta creeditation 112999691946..</p> <p>Registration dheth:2019/FE07/014 Mersecta 17QR/ACC/1312/17. LP R/09/2017/07/0018. EW seta 2093-280525. LGRS-2093-200525. Exam.899992880...</p> <p>Subject. Full.. 47.1.Requireded: operationel subject field saqa . seta implementation Saqa award certificate. Assessment conduct seta Saqa award diploma certificate n engineering.and St peace college training skill.mseta CHIETA.. development panel and control wiring Level engineering electrical.infracture development. Meeting saqa requireded I'd..no meeting statement skill development.id certificate award St peace college .db box outlet socket switch dol motor.transformer. Control instrument mechatronics, Career development city power graduat.implentation .career Continue trade skill supplementary trade meeting month trade . foreman</p> <p>ID: 258968 saqa commissioning domestic or commercial . ID: 10259 saqa fault find repair and maintenance tree phase , electrical engineering. ID : 263006 saqa ,demonstrating wiring of premise defining ID : 258937 ,install ,maintain low voltage,DB protection ID116466: inspection and circuit , ID: inspection and maintenance control and control panel and circuit , ID111388 :saqa electrical engineering and construction saqa I'd 67461: N3 code instruction category meeting ,A,B,C,.. Level2,3 ID : 258937..plant generation , distribution, construction mining chemical and energy sector, maintenanant,DB, protection,electrical safety cleaning, --scope of work specifications.sans 10142, - circuit breaker ,isolator, contractor and relay ,install Db , inspection Db , ID10607, 10605,10634, - replace fault -ID 116434: control electric network from a control electrical . Centre sgb ,power</p>	<p>breaker load feeder ,size and number of wire , Project Schedule usually expressed in tabuled, organised self explanation. -typical ref, legend and - build drawing s: Construction project is completed is revised drawing, created and submitted, constructor, high, any charge Initial design drawings. -Construction process completed. . -Electrical drawing and schematic. -designing installing troubleshooting electrical system requirements use various, line represented. - design engineering and technician use schematics to build and troubleshooting -One line diagram: medium voltage switchgear one line diagramed, and power systems single diagram. Is often drawing flow of electric. Typical: major components in the power systems list system voltage, transformation impedance, interrupting rating and fault current just the basic .item -Drawing should be kept. - Main control room of a -switching operation by identifying feeders and the load they serve, - System voltage frequency phase and normal operating position line diagram, - For more detailed view of an electrical distribution system, three line diagrams is used phase polyphone a c, system drawings, connection. - Diagramed show distribution component such bus rise, bus plug, panel, board, transformer, small, branch circuit, drawing alarm, system, -schematic diagram Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel Found, inductor, diode, logic gate, fuses contact, switch, every circuit, -circuit breaker control schematic: Wiring diagram. Terminal for selection terminal, relay, load detector relay wiring diagram. -main purpose of a wiring diagram electrical circuit arrange, schematic diagram, - wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair , -Block diagram: reference input filter sum, controller actuator process plant, distribution, sensor, - arguably ,basic type of electrical drawings block, diagram, components of complex</p>
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<p>plant .field manufacture engineering and manufacture. -Switch way panel wiring education technology. I'd ,electromechanic .electrotechnique .. teacher I'd .saqa .</p>	<p>systems,form of block,internnected,block provide a conceptual, idée a process is completed, electrical, Symbol. Represent schema -logic Diagram: current gate and logic gate clock - Breaker failure relay logic diagram. Modern protective relays utilization diagram to represent complex circuit process .electrical. - Schedules.</p> <p>A build Electronics use soldering. And disordering. System...welding iron, solder, silver, or copper lead, desoldering, plug, outlet, cleaning disconnectorb, connector.printer circuit fabric film microship process. Silicon. Plastic molding... Fit recess .fit wiring .process... Control - Instrument method selector design metering process</p> <p>I</p> <p>Appointment of service provider supply St peace College and city power delivery component lab workshop part time table subject... -introduction global stage St Peace college. -Scopes of project: projection required supplies to purchase and deliver total, -Special condition component Subject module metering 4. Purpise documents. Budgets: a projection budgets St Peace college city power time table fee.burasary.close graduation interne ship fund student.gov -Quotation value tax (vat) project: time frame project is to commence success bidder Firm price subject, name of the company quotation close Appliance and company subject. - Item description of good part number quantity Evaluation criterion (80/20). -request for quotation number -limitation to quote supply and delivery Item/ description of good //quart///price/// bid price RSA 001 /engineering electrical practice workshop projectile engineering open view lab test lab and workshop practical saga .duet training exam paper .seta. Assessment police //// amount estimation fee Total include .8modul x 24subject x3month 200 projection years amen's test experimental</p>
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	<p>technology. Training integrity one project... -delivery period Specifications required for project:</p> <p>Registration saga assessor conduct certificate. Saga I'd institutes foreign. No meeting institutes accreditation saga decision. Admit /30-39 NC's. Total credit. -assessment policy IE099-IE00.regular internal, Saga decision 10105/14 advance diploma intermediary phase teacher. Conduct... .n1-n3 national certificate engineering studies. -N1: Saga ID6710, N2 saga ID 637375, N2 saga ID 67491...Entrance... I'd saga award diploma N ... Ncv assessment plan isat . 40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,,... topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...t raining exam rwtien permit and time table practice exam days. Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grode.. Isat integrity practice..time frame .allocation require ..</p> <p>41.1..required city power vacancies Estimated ICT service Research inovation: -table of content . Graduate internship Training center employee.visitor student apprenticeship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training. 1.city power vacance 2023.for officer special and variations use career opportunities. Training oppoy . Metering guyser. Light city .training engineering career. 1.1 How to apply for city power vacancies 2023... Student career granted. -meter reading submission: St peace college time table engineering electrical Portfolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. Interlock system. Training partnership test. Outcomes career student generation power station transmission trading. - City power workplace ready to light up career artisan engineering. - Name of profile - City power. -manager vacancy. -city power officer vacancy. -city power specialist...</p>
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	<p> : 40.10...requirement: implementation --SAQA module award diplomat -Award diploma n.engineering electrical -Award instituts foreign decission saqa -registration .award saqa n1,2,3,4,5,6. -Award meet documents. -Assement assessor saqa conduct moderator I'd: 202001305040/20191130002 Dhet exam nated: 201000203812/2004007064381/2011007434332. . 40.10.1 requireded of work experience logbook instructions programme code 5090840..national n diplomat.engineering studies electrical I'd :90674.engineering studies NQF level6, 360, credit saqa learner I'd 67043 national electrical engineering nqf .level6..learner name :tshingombe Tshitadi ,surname : Tshitadi Fiston. Number employeer : Details compagny St peace college city power: Name signature... </p>
Check up	

To compliance Labor: electric power factor test inspection compliance.

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Relation education labor technology

Test installation Electric metering single phase .three-phase test trade certificate coca.

Checking inspection safety health

Machinery occupation health test

Design inspection

Tender: supplies saps development load company manufacture in city power

Saps student

Time: information management system, performance system development

Tom engineering

2.1.4 operational preliminary case study visited power city

Operational required:

Permit working tendered temporaries permit and license study council permit government homes

affairs study permit foreign citizens plants permit, and RSA permit I'd and exam

Exam permit period passport visa tourism transport logistics student

Meeting

2.1.4.1. Permit allowed minimum job career student permit security in BTs

training allocation minim job

Social work classification job government to allowed case study student trade exam to be

experimental in the plant city power Eskom and government institutes labor department

Visa code trade booking exam I'd time table days and time 4subject

Permit legislation framework regulatory mandatory to more experience pass port visa student I'd

asylum to to work and studies tourism in the plant

2.1.4.2. Questions factory ask/another student was not allowed to trade in the plant and to be training in the plant for

dangerous .labor insurance compensation and development social student have for more information was poor in the sector theory to gate more information and to overcome power city member employment to work exam practice together in national planning plant was no coming successful for students to allowed. student must drop CV in entrepreneurs and city power to be employ for training and gate information not for work outside but in the plant system no to work in time table allocation technology outcome student to work powerful in academic workshop

Student to research and work power city information metering geyser in the academic research time table academic time table electrical .and student

Can gate qualifications. Security reception more policy power city framework did allowed customer services to delivery more information only training center power city was allowed training.

2.1.4.3. Ask / answers. Factor permit

Pass port time table careers. Factor physical security Eskom close tendered required company security must be completed student security sassed accreditation school. And student set a number request for allowing

Student engineering assessment council engineering and trade council visa I'd permit student for trade exam.

Was Questions more with visa internal city power Eskom

Day visit rendered was not defined to student to working in government city power Eskom, search research system integration student circular assessment to work and find minimum granted for examination labor.

2.1.4.4 .CVS student city power and training trainer to delivery bill information system.

Integrate job government student was alone by self explanatory no company tendered work partners with city power Eskom on visiting site student was not in site was dangerous place for health student working in higher voltage and irregularity students in the system . System need to trainer training appropriate job and faculty appropriate school power city in school development plant power city metering student in meeting plant, school collie Eskom commission. Department trade industries Industries Company in trade company examination engineering, engineering labor school in engineering

Electric in commission class school generate

1.4.6 .student college assessment workshop workplace class work. Homework research engineering project process

in field faculty research department research.
Ask/

2.1.4.6.1 Faculty allowed system engineering lab engineering lab workshop engineering studies and library academic studies center assessment engineering. Permit engineering allowed engineering time table work engineering 4 subject statement engineering case studies for projection cost trademarks was outcome technology.

Misconceptions faculty retention subject psychometric vocational career guidelines study engineering projects trade plant engineering analyze design investigation system .generation electrical magnetism generation transmission system anted CCTV , study material, building student experimental plant city power how plant was working

Tendered close time table n1, 2, 3,4,5,6 NQF /level subject in system continue basic advanced filing engineering fundamental system

. Circular system study must undergoing investigation principle low power.

.consumer power factor trade correction power module student more and company operational required

Gov manufacture relate sassed seta merest accreditation company trade to supply trade test making trading component equipment to sharp fit to step operate chisel mark . Engineering trade in the plants

Design system

2.1.4.6.2..government system national fund financial implications in system exam to more go sector .

.go development social worker union fund to student go visited.

Closed sector required minimum score

Inventory

12..4.6.3. Metering module trade theory electrique. Electrotech.electrotechnology resembles instrument measures. Information management system. Framework communication skill, mathematique engineering science outcome engineering electric .factor

Instrument ammeter voltmeter wattmeter cos.analogy.digital metering.

Transco metering low voltage .high voltage.

City power Eskom authentic district municipality job customer house building substation. Generation transmission. Transformation cabling sector basic home electric metering power geyser cost

Month consumer kWh indicator meter and coat price inventory

Customer registration number existing installation and customer metering number custom power meter square consumer planning wiring design custom:

Registered customer training sale air time and metering installation single phase and tree phase installation industrial installation. Customer

Municipality lighting road ways street municipality designing civil engineering power lighting switch ways system.

Trade light to implement bulb trading data system.

2.1.4.6.5. Metering implementation time table experimental generation transmission level and panel skill experimental in the system house home development to the plant training city power Eskom.

Practice electrique engineering research academic switch ways design db box outlets socket award qualifications time table investigation switch ways circuit breaker motor investigation analyze design

power factor to be re implantation in company city power Eskom commission entrepreneurs go implement to be working in system. Policy system academic sibs sans trade theory licensed

System information analysis engineering fundamental system process...

Communication system engineering electrical license term trade to be implemented in city power was installed

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Electricque in commission class school generate

3.1.4.6 .student college assessment workshop workplace class work. Homework research engineering project process in field faculty research department research.

Ask/

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Inventory

3.1.4.6.3. Metering module trade theory electric. Electrotech.electrotechnology resembles instrument measures. Information management system. Framework communication skill, mathematic engineering science outcome engineering electric .factor
Instrument ammeter voltmeter wattmeter cos.analogy.digital metering.
Transco metering low voltage .high voltage.
City power Eskom authentic district municipality job customer house building substation. Generation transmission. Transformation cabling sector basic home electric metering power geyser cost
Month consumer kWh indicator meter and coat price inventory
Customer registration number existing installation and customer metering number custom
power meter square consumer planning wiring design custom:
Registered customer training sale air time and metering installation single phase and three phase installation industrial installation. Customer
Municipality lighting road ways street municipality designing civil engineering power lighting switch ways system.
Trade light to implement bulb trading data system.

3.1.4.6.5. Metering implementation time table experimental generation transmission level and panel skill experimental in the system house home development to the plant training city power Eskom.
Practice electric engineering research academic switch ways design db box outlets socket award qualifications time table investigation switch ways circuit breaker motor investigation analyze design power factor to be re implantation in company city power Eskom commission entrepreneurs go implement to be working in system. Policy system academic sibs sans trade theory licensed
System information analysis engineering fundamental system process...
Communication system engineering electrical license term trade to be implemented in city power was installed.

Engineering electrical evidence collection guidelines recommend police and army police military...
digital electronics item may have.computer .mobile device laptop.record ammunition.place cushioning material comparison analysis prevent damage record manufacture serial number model found fire arm weapon . Examination item information. Personal contact.mode or disconnected from network Faraday bag main tenant power to devices d consultant digital forensics examination package items in butcher. Do not tape item. Exploitation mitigation.xollect USB device.dvd.xd gasman DNA examination.seaech cybercrime offender computer networking chat room phone explosion technology in order hack criminal's crime targeting computer intellectual property...
Police support to army operationel.principleoperation police rules low operationel environment..
Planning preparatory and assessing police operational planning execution assessor.base man power mission police station detention cell operation enforcement compliance legal...strategies.policing.
Laboratory support. Low enforcement patrol main power... function justice system...tools mark...
enforcement low safety security engineering electrical safety management systems.patrolmainten working build management
Implications...
Tom police security city power and College training system.

Professional engineer electronics or electrical engineering... financial program.information use to generate information on pretermine object indicator. Description and information...visible
policing crime investigation.specialised investigation.intelligencr information management protection VIP government security regulatory.static security.physical security system tiditechnical indicator technology...perusal registrar system police investigation director. Manual system. objective statement indicating.infrasture development structure plan respect work report is base saps project..
Project poling facility management to maintain. Control system. community service reporting cycle quarterly and responsibility crime investigation implementation responsibility office .the non proliferation of weapon mass destruction act 1993act no87 of 1993..police interviews scenario....
engineering electrical city power electric metering scenario vs. appliance electric metering time table low enforcement appliance fire arm appliance customer CCTV radio security customer security it PC cyber customer appliance TV radio bomb missing circuit network vs. city power trade challenge assessment police engineering electrical time table trade theory engineering low non according manufacture and related,
:

Engineering modules equation algebraic linearity exponential ax by...a square +bbsquare network....
 engineering planing components.research advanced field generation ,skill explain, development skill
 components,science natural mathematique,device protection components , discovery ...
 Engineering investigation resolve of crime framework regulatory engineering crime incidence...step
 collating crime information legal , crime source information ,identity crime describe crime
 analyse..crime zone no protection over loa.identify plan subject completed source and need design
 describ analyse feed back trade safety...
 Engineering understand code conducteur.reason .learner. Discovery...
 Point reasoning. Question. Operationel.skill total achievable processes. Add value learner
 assessment...apply skill solution resolve problem...
 Questionnaire point of process or accuracy. Evidence...expected response evidence appropriate
 division correct trade Engineering correct multiply,evidence copper is correct each line trade
 theory ...DC current equivalent force emt.. Junction rules Kirchhoff rules potential rules RC circuit.
 Shock hazard, thermal hazard tree wire system...terminal voltage...
 Key terms... instrument that's...
 deflection...

Description	Unit yes not
<p>Key equation terminal of single voltage source v terminal=sum -I re few=R1+R2+R3+RN</p> <p>Sum = junction rules sum Lin =sum I out, loop rules, terminal voltage of voltage source in parallel v terminal, = r,-I sum courant.</p> <p>Time constant t=RC.</p> <p>.direct current current during charging of capacitor, I=fRe-try=loe-tRC...</p> <p>Charge on discharge capacitor q(t)=Qe-t,f</p> <p>Electromotive force, EMF work done per charge keep..the voltage output of a device is called v terminal and v terminal=€-Ir...Rs =R1+R2+,,,,, current resistance find low him</p> <p>Resistance resistivity length found area resistance wire , copper across...</p> <p>Electric power...</p> <p>P=v.t...p=vsquare/r.. battery to power supplies...</p> <p>Cost..cost = power rating in kWh x number of our it run x cost per kWh..</p> <p>Home monthly cost appliance every day possible includ dryer.micriwave.tv back ..if does give power give the should. A current.any thing in the socket 220v ..socket is cheap on the power is how much.. electricity continued to increase efficiency to offset consumption.. energy saving are account up being cheaper...</p> <p>4.2.DC courent direct current vs alternating current ac ..</p> <p>Battery products DC current batteries voltage EMF is constant constant current circuit capacitor store charge current from socket...</p> <p>If look voltage peak +170v decrease through 0 to -170 and rise value 170 really be 110-120 that actually average but peak really is about 170..0oscillating voltage product electrique field..electron response to this oscillating field and oscillating back and forth producing an oscillator curent in the circular..</p> <p>Graph voltage as functions of time current this average value voltage from wall socket it know as the root mean square,or rms, average.voltage varies sinusoidal.positive as negative doing average..vrms=0,707Vo and Irma=0,707I.O.. Instant 0.606...serir parallel voltage supplied Series resistance</p>	Value estimaton calculation

<p>equivalent.parallel...</p> <p>Performance a mechanical inspection and reporting on motor transformation workshop... components main...connected...AC current...Phase diagram...ohmic resistance only</p> <p>$v=r.i$...$I=\sin.w.t$ in phase R..AC ..$I=v.\sin.w.t.dt$..$v.i=\sin Wt$...current lags ..$W_L=2\pi fL=x$ inductive reactance integrated...</p> <p>Operator j with rotate a vector 90 degree in anticlockwise direction $2j=1, j=1$... power triangle..$S=P+jQ$..$s=p+jQ$...apparent, $a=v.i$ \RightarrowPower ...$Q=I^2R$.....</p> <p>DC generation...$V_T=E_a-I_aR_a$ voltage full load...i_a equal is ,, speed $e=d\phi/St=p/60/n=PN/60.2\phi$...$2\phi$ flux $pN/120$..$f=p.n/60$ sinusoidal AC voltage of factor induced EMF</p> <p>Conductor=$1.11x_e=(1.11)x(2\phi f)=2.22$..emf par volt per phase x no of turn 4.44 flux ..Contactor...</p> <p>Instrument.</p> <p>Magnetic equation deflection's=$B.I.l.n$ deflection torque</p> <p>$TD=force \times perpendicular distance$...$a=l \times b$ $TD=TC$...</p> <p>Parallel movement must same..</p> <p>$I_{sh}.r_{sh}=I_{im}$..$I=I'm(1+RM/R_{sh})$...</p> <p>$V=I'm(RM+R_{se})$.. $v=VM(1+R_{se}/RM)$.....</p> <p>$e=d/dt(I)$.....</p> <p>Power with meter consumption torque balancing energy in the circuit is directed registered..speed increase ..phase error occurred phase difference pressure error temperature.creping</p> <p>$TD=TC$..flux $=[v.i.\cos/(k_r p)](DM/d\phi)=[kdM/d\phi]$..$P..k=kRp$..<p>is power consumption..m mutual inductance.teta .instaneouse current in pressure coil resistance $v=\sqrt{2}.v.\sin.w.t$ insta voltage ..$IP=\sqrt{2}.ip.\sin w$...average deflection . average deflection...</p> </p>	
Total	

9.provide contextual information established : in city power and St peace college students engineering electrical research

implementation trainings appliances electrical fault guyser stove light outlet socket current power factor demand factor metering customer trade . theory current power delivery to the customer and customer appliance requirements need to trade theory outcom system engineering electrical.true power real power factor regulation system information.metering control analogy digital system sale kWh .metering customer demand single phase tree phase industrial.domeatic .

Theory current state previously study trade theory to wiring db box mering client domestic appliances technology electrotechnolgy trade.

Certificate license test trade theory validation low real power factor

Reactance inductance impedance system metering challenge instrument controller metering reading cost 1@kwh,value1rand tax value certificate issue matter license code client metering indicator trade metering . investigation sale .

9.8 compared resultant obtained statement visited investigation metering St peace college time table learning cost grade

cost value time .need to verify by the college St peace engineering work study engineering works place workshop trade cost appliance time credit accreditation value and city power real time delivery and sale cost building real time consumer schedule.....

10. Title report should indicate.

11. Weak titles, strong title appliance electrique engineering electrical Fundamental system .power...

:

4.2.1. Requirement appointment of plants engineering electrical consultant provision professional services city power and St peace College Anted statement engineering

electrical theory city municipal provincial infrastructure visit development projects case study topic Portfolio evidence.

4.1.2 Sub sector manufacture main tenant St Peace college engineering learner assessment outcome transmitted generation power station metering electricity electromagnetic career outcome to visit joint venture city power government.

4.1.2.1 Special IST mark application

Discipline mark application

roads and traffic engineering, road and storm water pavement evaluation, road transportation and traffic impact access studies St Peace college .relation circular assessment traffic map design, parking and access studies traffic management .traffuc police. Enforcement low .study material in assessor assignment engineering, tom, Maintenance police technical support material advisor circular assessment guidelines study investigated principal.Nd information management system framework regulatory government Gazette act material design investigation city power with happened and methods research city power traffic registrar research engineer low traffic prevention low. structure and building cause ways, Culver's bridge community. Stability equivalent equipment policy maintenance design meetings breakdown in the plant system

electrical: rural electrification substations, network protection and control design. Energy efficiency demand assessment development operational maintenance and tom repaired road traffic engine structure and building criterion plan

-demonstrate

-relevant experience key personnel

- Bidder experimental skill methodology

-total point

-criterion professional liability insurance R3m for each and every insurance methods research qualifications and roles of each staff

2. Implementation framework regulatory legislation mandatory engineering electrical case study circular time table in visited work components innovation CVS city power Implementation close submitted of course daily tenders note assessment peer and self class assessment discussed note provide services trade skill report phase1,2,3,4,5,6 registered trade test reading experimental close Portfolio evidence documents week lee attendance release resultant statement

5.-2.1module: induction safety hand tools Conductor recall carry section join crimping soldering prepared fault find control contactor...

Adhered to correct instrument is used fault find the control panel... distribution fuse AC heavy current motor control open circuit. Short under voltage retain fault single fault application start motor db system .fluorescence installation switch.

Following controller main circuit phase squirrel cage induction motor can. Director line ward automatic start delta autotransformer constant torque phase rotation...generator AC machine transmission... commission capacitor starter phase slips according.

5.2.2. Code: recall application section of the training act 56, 1981, Gazette questionnaire exam conductor method

Crimping joiner electrical mechanical.

No dry joint a damage allocation. Specification insulator testing instruments cables make off core PVC armored MMM core high voltage gland ferrules and used to accord joint rating termination...sibs 0142 identify ply cable 100%,test gears circuit machine protection.

5.2.3 Objectivity: relevant color marking and correct use sibs 0140 hand tools identify checking forming character gas weld working piece trade correct according tender number

Chain block ton max shake ton sign work select voltmeter ammeter energy meter select safety Identify electronics compose wire wound up to metal oxide capacitor ceramics diode transistor thruster %100 correct Solder

2.4 criteria recall the operation of different type of battery identify various type correct maintain according. Manufacture electrical system f connection applicable auto electrical... fault find auto electrical all safety aspects adhered to. Correct according manufacture check and adjust correct procedure settings manufacture camber and...

Correct process adhered. Test correct stable multivibrator use dual wave form DC AC average value peak frequency range frequency all reading be programmed p.l.c

6.1.3. Company requirements

Specifically theoretical pass requirements mathematics and trade theory subject employer college apprentice relevant subject n1,n2,n3,n4,n5,n6 n diploma saga award n body quality insurance assessment. Trade test and council engineering.

Applicable value point relate years experience , certificate trade ,5%clear time frame project, plan training clear roles response, equipment workshop, including restraints

6.2. Engineering n diploma duet career and engineering n diploma saga qualifications criteria time table n1, n6 trade engineering subject career mentoring outcome subject engineering electrical electricity .college implementation n subject...

mathematics,engineering science , engineering drawings.trade theory

electrical,electrotechnology,power machine, engineering physics, chemical engineering department.outcome industrial electronic trade test theory.logic control practice learner level infrastructure construction electricity..Outcome engineering electrical career generation,

transmission electromagnetism level continue.isat integration practice engineering lab workshop experimental...time frame framework. Practice theory integrate assessment

employment saga qualifications Engineering n electrical criteria

institutes,sassa.employment company trade gov career graduate internship close city

power careers.eskom career training career graduate saga. engineering n electricity field

panel wiring electric . drawing electricity,control logic .cable join .fridge.substation .generation

motor .work 24month qualifications.categories career mining gov and labour examination

experiential, guide ..

.city power network metering and partnership Eskom generated transmission with appliance need.

Consolidated for students have time table to visiting reading...security system information access

studies or traffic police in building city power, regulation with student accreditation sassa sassa

assessment police or circular to working database system entry visited in and outcome student visited

day week . Attendance for reason study in training BT's city power card passport visa tourism

negotiate career graduate student. Visited is individual self assessment student career. And class

group school assessment coming for extra visited or large attendance...

Access control ticket for interview career asks or donate individual research things student

knowledge individual...

7.Labour health education for engineering in plant...labour mining examination student examination safety to prevention hazard or any dangerous incidence student labour give permission for engineering to visited plant. Coed if for insurance when is problem to health machinery. In compliance electricity for trade labor national diploma they are covered by inspection labor

7 .14.1Mining qualifications categories may give permission to visiting categories foreman trademan electricity mining industry. Hazard explosion fault discrimination

detection exposition mining plant solutions permitted for trade mining they are covering

visited .power mining coil copper etc

7. 14.1 Dti industrial trade gives that permission

Department education and go department. Any proliferation for trade.

Development infrastructure for student's .city power cable trade in appliances

Coverage human resource city power can be claim to data labor department mining department for

student visited extra time work over time on training city power space municipality...power

explosion...government....steam mining geotechnical investigation earth discovery in natural they are

covered insurance student visited places and personal trainer learner working visited electricity

engineering.. Technologies science innovation.

8. 19. Purpose design integration. City power. Study information on line career.

Home customer, tender city power career.

19.1 applications for electrical services responsibility for providing electricity service to property

owners in the city power. Billing service division two categories namely small power uses sup and

large power use plug electrical services connection no greater than 56kva in general type of connection.

-Apply to convert a sup form post paid to prepaid Billy

Apply for new prepared or postpaid duplicate connection.

-apply for a new connection.

Region revenue...

9. 19.2.. feedback.guyser control, meter reading.schedul.tarrif info, prepaid vending, energy type, fault Loggins,load shedding, library, claim,tarrif info, tariff library , monthly meter ,meter reading.

19.3 meter estimated...

Company secretary m smith. Executive director,

.. Registration number 2000/3005vat numbers

Insurance claims form electrify account number, prepaid meter street,code,postal address, city power number, call centre , description of how the loss damage, occurred insurance repaired replacement quotation .

-leadership seniors management team, compagny.media.

-theory city invention metering city old metering power.daig business with city power,

Supplier vendor providing services,

- company awad.compagny registration, originally tax pine, relevant,I'd,direct,B-BBEE,tender.

10. -20.Hearing conservation programme.

Training awareness and induction programme attended.noise exposed registered audiometry.during induction.

_content ..loss, regulation city power

-trainong shall cover,

Content and scope training of the ihl regulariion records

.10.-21. request for quotation

Name date post, closing,tender, description, additional, business plan, quarterly report,AGM,red year report, annual financial statements, service level agreement, staring period, endings period.

22..Application for electricque supplies stand number, township, building name, street address type use, residential, commercial, industrial,

Customer account.customer meter tick

-New service connection.

New service connection, single 80A.tree phase 80A, prepaid convention.other...

- Convention single phase 80A, smart metering, repositioning of metering single 80A,

-up grade download of supplies existing am requesting.new meter box boundary existing cabling.

- city power agreement supply of electricque applied for is govment by low application liability according, routine monthly read, notification, connection, connection objectivity, registration,name domestic customer service connection not exceed 56kvA3phase ,80Am to supplies R1200, outcome.

Customer log fault

Measure the power of learning and criterion are registered trade mark of education testing services. prepare for criteria asservissemnt test exam skill. Discover practice full. Employment testing services are design engineering aptitude minute test design, criteria

Type, test measure trade mark holder. License electrician assessment, apprenticeship.license electrician theory and license practice. Wiring meter box sub and switch boor, men system, comment licensed, week basic licensed including readings comprehensive test numerical reasoning test

Trade apprenticeship.problem reasoning perspective math.mechanical.electrical.physic.

Questionnaire company qualifications question theory electricque test power current.

24. Fault find and protective. Control circuit...

-Installer rules: PVC flexible conduit isolating switch correct factor Sep

Cable burette, depth cable, cable installer.

11. 22: metering error connecting prepaid, over load, no power accident on appliance power metering consumer procedure claim fraud crime metering

Logged call, off metering minutes,

City power and Eskom on line metering recharge prepaid:

Compared metering old analogue indicator kWh day daily check by service accountability kWh building account energy meter take 1day20kwh room house estimate ×360days7200kwh years energy heater consumer indicator safety key lock metering analogies reading value 7200kwh, to rand cost Bill discount prepaid cash metering return back tax vat customer consumer building large medium tax redistributed 3200kwh real amount prepaid on metering digital. Customer's pays money 10rand have 3kwh to 5kwh, consumer readers

.. electric wiring factor building installation electric and appliance design supply need real time cycle for that discounts technology cable police respire main tenant old cabling equipment years 10yrars replace cable high voltage transformer to cleaner reactance synchronous machine on designing reader's kWh 7200kwh coverage policy main tenant check point kWh lighting was default fault appliance claim and fault old system design by networks system city power in interconnected news

building and account nest number industrial news technology need to claim visited plant,,tpm
engineering design AC DC current step task creation operational curent assessment

24. Purpose comparing estimate:

Designing and investigation: electrical power transmission network: protected and controlled high voltage circuit breaker inside electrical grid substation relays scheme can be complex.

-oil minimum circuit.

-overloading excessive, curent not due to faults,

-short circuit fault between phases, short circuit,

24.1 classifications

- Oil circuit breaker OCBS, vacuums circuit,

-SF6 circuit breakers

-air circuit breakers,

Oil tanks in oil circuit breakers or normally, oil is very good insulator has high dielectric electrique strength, cold oil is able to act as on insulator,

C... design

Good quality as below,

Good heat transfer Quantity

Short arcing time

Comportment

-high voltage used service, on circuit rating 600v, standard 4,160to 765,00v and 3 phase interrupting 50.000to50, 000,000kv,

Electronic symbol circuit breaker...

Transfo MVA, found in substation 600MVA, 3, 6 35 kV industries,

-switch disconnection. Use control section switchgears panel...

_Construction...bulk oilcinductor bushing, fixed contact, moving contact operating,

Vic vacuum circuit breaker.

Oil circuit breaker less risk,

SF6 current breaker very less,

- Mechanism operational, insulator, arc contact, frame lane contact, hand operator, electric solenoid, frame, Erie tropical,

SF6, high sulfured fluorite, is air interrupted...

12. 29. Conceptual problem conception assures efficiency conversion of solar, steamer thermal hydroelectric renewable energy electricity lower acceleration rest...

Integrated concept light draw power consumption.heatet calculi power dissipation operating bulb time costrb, cost appliance electric fusible.

-Rating fusible high voltage relays protection advance:

Z, impedance cable breaker tranfo, conductance fault detect

12..Generation resource .network transmission system

Time table engineering science .physic engineering chemical, electrical engineering.

Mathematics engineering, apply to the career outcomes skill to make a agreement arrange power city training visited engineering estimate resource internal and compare additional system explain reasoning engineering in point

24. Mechanical designer process equipment, area removal. Physic engineering .area...A1= reinforcement area jacket steam

.

Descripton unite	Yes not
Designing plant and economic chemical engineering and physic Engineering limited for corresponding limited years analogies computer. Specifically internal energy u to system robe do/St rate kinematics rate input to system $(U1+g1+1/2v)$ dm1/dot... $(U2+gz2+1/2.V$ saque).DM square/DT (rate of energy input)-(rate of energy out)=rate enegie chemical plant large quantities heat 150 degree Celsius ,1000kwh shaft delivery steam turbine power...	Estimation system

<p>10 bar /400 degree Celsius..generator 1500v.. Diffuser,super heater .. $dQ/dt-dw/DT=F \text{ square } (H2+g.z/g1+1/2.v\text{square})-f(H1+9z/g+1/2v2.v1 \text{ square.}/g)$</p> <p>Initial interest rate percentage n program computer print out following in job map ..voltage.. Emergency system energy .compare Electrogene group motoring test compare fuel supply direct bore store 98,5/1040,,cubical capacity 3200cm square, compression ratio 17,oto1, valve gear d-0-ho valve. Engine output max power peak150 kW,118,power peak redli e 3800/440°,mac torque n.mm343, torque peak..test Applied thermal engineering fuel tank $Nth=hbh/htx100,,,swept \text{ volume.}$ $Vs=n/4$.Dsquare.L 100liter, pay load 756 .homologated, Warranty and service 3years kWh ..kmh rpm engine power 3800r/m power/mass(w/kg)61 Power/litre kW/h38,torque litre NM/l</p> <p>(P.V/T)n.t=(P1.v1/T1) working .volume of .head...low conservation transfoy in system Audit overall applied calculate efficiency work.donr.Ew=F.d. $P=E/t....Ek=1/2.m.v\text{square}.Ep=m.g.h.. E e=v.i.t. Eh=C.m\Delta.t.,,$ efficiency η= energy out/Energies input....power output/power input..low</p>	
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13. 21. Engineering systems modelling N assessemnt for engineering police in St peace college was covert by lecture note and sylabus reading
Introduction topics lecture note.and policy overview St peace college orientation guide and visited city power policy training circular note key learner apprenticeship work job career.

21.1 framework and tools : scientific assessment making model exhiy -framework science police .
Engineering electrical innovation Portfolio evidence
Implementation in city power training complain claim police case study training recall resolve
conflicts safety security in city power science analyze student case investigation.scenerio in city
power .

-Framework precautions : student prevention safety trade machine circular time table training city
power learner prevent precautions visited development work study conducted trade infrastructure
-Projection: precautions preparation frame study. Air polutioning science natural.
-Project checks point gate point assignment engineering electrical:
- Case studies: engineering electrical council engineering and trade council labor analyze in
government city power framework regulatory legislation: mandatory legislation police power and
mandatory engineering power constitution go Gazette power attorney to work empower development
learner
-model

**14..22. engineering electrical: specifications of machinery equipment. Motor machine
generation battery need to made verification**
**load cycle., duration electrique,time ,duty, continue operational ,periodic cycle consisting
cycle of a time of operationel,load and time of operational at no load there is not time
energetizer and recycling and reacting in cycle duration factor,100tn+ v load cycle.**
**Duration time electric lost electrique breakdown, on period operation load time inertia
factor breakdown=power receive methods effective load applied to the motor thermal relay
contactor**
**policy maintenance engineering remanufactured tom cleaning meeting do check action
take activities equipment breakdown re valuation. System products city power breakdown**

energy metering guises break down .student breakdown exam weekend over load. Operation excessively.net operation .time net.
22. Engineering electrical planning organizing days shift task activities development system .day visited city power week.week.week.week. CVS

Step task check revision

Electrical engineering.ac DC machine engineering. Motor generation machine conduct move DC generator operator satisfactory a motor fundamental speed equation in put output,
 -parallel circuit distribution engineering reactance resistance impedance susceptance reactance total admission power factor circuit problem. In the find
 -Tc parallel AC generator balance magnitude heat, phases system: $P/\sqrt{3}.E.I \cos$ phase power transmitted two receiver two single phase ,transfo secondaire A.load circuit source, $I/\sqrt{4}.I/c$ non oscillator transient.
 AC ,time of the rms $I/\sqrt{3}.I.m.$
 Company Serie circuit power distribution total susceptance, admittance, theory

Engineering, $z_A, z_B, z_C, (a+jb), (c+jD), (f+jg)$.. engineering capacitor operator angle free.
 Development Serie resistance impedance equation compare loop linears ,sum junction
 $R_1+R_2+R_3+.....$ series $1/R_1+1/R_2+1/R_3+...$ parallel
 $.z_1+Z_2+Z_3+...1/z_1+1/Z_2+1/Z_3.../G_1+G_2G_3+..1/G_1+1/G_2+1/G_3....$ /gradient vectors
 Developing $R_a+R_b+R_c+=R_{sh}$
 $V(R_b+R_c)=v(R_a+R_m)$
 $R_b+R_c)(12-I_m)=I'm(R_a+R_m)R(R_a+R_c).$
 $=I'm(R_a+R_b+R_c+R)=I'm(R_{sh}+R_m).$

Description	Total unite
Engineering, $z_A, z_B, z_C, (a+jb), (c+jD), (f+jg)$.. engineering capacitor operator angle free. Development Serie resistance impedance equation compare loop linears ,sum junction $R_1+R_2+R_3+.....$ series $1/R_1+1/R_2+1/R_3+...$ parallel $.z_1+Z_2+Z_3+...1/z_1+1/Z_2+1/Z_3.../G_1+G_2G_3+..1/G_1+1/G_2+1/G_3....$ /gradient vectors Developing $R_a+R_b+R_c+=R_{sh}$ $V(R_b+R_c)=v(R_a+R_m)$ $R_b+R_c)(12-I_m)=I'm(R_a+R_m)R(R_a+R_c).$ $=I'm(R_a+R_b+R_c+R)=I'm(R_{sh}+R_m).$	

PMMC..is essentially a low level DC , parallel instrument.. $V_m=I_m.IR...$

-Engineering transfor system.comparing power distribution assignment watt output average output current wave line secondary statement a(c). Delta, delta start. Start delta start star. Zigzag delta zigzag star anaphase...auto tranfor .courent voltage transfo high voltage. Equation load circulating switch transfo.balance load application of.postef
 Electric technologies

14. 28. Compare training assessment and assignment engineering electrical to implement time table workplace workshop academic in trade social city power design factor training
15. 28.1 requirements: subject and module:
-supervision in industry

- Industrial orientation
 -industrial organization trade theory electrical, electro technique mechanitechnique language
 compulsories a, language business saga NVC level national...
 _anted :for subject engineering:
 Anted care educate training facilitator, and learners port
 Practically college academic: philosophies practical school guideline employment learner
 -28.2 what are didactique strategic investigate [multidisciplinary](#). In development goal construct
 training materials and evaluation, how the model is didactic expertise as aspects education didactic
 of instruction and facts authority and telling authority written.: implementation circular St peace
 college didactic material framework regulator tools assessment for learner and trainer system
 information, file material metering to material didactic city power and Eskom material
 training education support .method measure instrument of evaluation. Visited p999ortal career scope
 assignment goal value cable population city electrification attendance is available. For employment
 29. Methodologie .more
 -Orientation guidance school ,organization lessons ,compares organization supervisor industrial in St
 Peace collie regulation City power training:

<p>-Lesson plan grade .and class engineering technical Grade 12to 9,, engineering nated classn1,n6,. Level 1,4 , Lesson plan technologie -education technology matric and trade Engineering app video course ressours. -projection orthographic.. orthopadagogic , orthographic isometric Orthographic drawing, -activity , subject area orthographic projection is a technique used spatial vision three dimensional object,can be convent, -Lesson plan it association of training plan : projection city power light metering ,gysez planing and subject module required trade theory electrical module .wire premise power factor consumer plan.inatruction didactic form city power assignment: -Orthopedagogy pedagogic Module week: Daily 5: planing and preparing lesson to include -view lesson planning is critical activity for prepare Childress High phase Templars described. Key component : city power care training practice. Explanation overhead or projector used keep.</p>	<p>-lesson plan: is a document that outlines the contents that your less step-by-step student teacher Lesson plan is usually prepare in advance either cover one off , activity,entire lesson , Lesson St peace college unity in trade training Day visited week visited.primary include activities -lesson plan: board city power metering days care visited St Peace college module subject integrate Portfolio assessment Activities. Objective lessons goal feedback science lessons anything from, experimental to monitoring or to diagramed Lesson plan run smoothly. -provide reflection: in the lesson greater way.. Lesson metering system city power goal megawatt and city appliance compare lesson module plan at peace grater. Break project down .module time table visited plant operations and break.sectiin checklist, Learn number life student complex, activities all orthographic drawing quickly grade level (9-12). Required 45 minutes subject area geometry problem solving share bottom shaped</p>	<p>3D objects copyright engineering are connected, activity view isometric, Pre assessor drawing challenge.. Circular police assessment. -management system information: In St peace college and integrity police system saps and city power , technician indicator persal personal police employment system data base.polfn police financiaire statement, training goal product humain resource and Indicator number titles -indicator building management implementation Indicator criminals dismental lab , Career secret purpose involvement laboratories indicator laboratory indicator training incident system support evidence report directors t implementation.... city power indicator trading lab record keeping finger print training student and St peace subject record clearence visited day working to report crime togheter,,,,method research crime evaluation in time table script transcript component fraudulent module appliance in city power and report over load required.</p>
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_29. Teacher vocational: guidance counseling interview verbal communication career design in
 training city power and St Peace colege learn more career outcom engineering electric subject nated

exhibition engineering generation transmission power station.electrician engineering to city power engineering career

Questionnaire design what is leading to pursue a career counseling have excellent written and verbal communication skills approach counseling assistance stator management attorney audiology ..what are the communication skills communication,with guidance counseling characteristics off effective guideline counseling interview School may be focused on graduation and , career, balance career teaching that employee look for candidate, including college professional, Caractéristique Component Company engineering electrical: design generation transmission in training power metering design caractéristique level . Stability. And with the principal key power: load over load rating , switch, Company..

15. -29 required management trainee class and company training

How to management and control during teaching

-how to organize teacher filing cabinet training room trainer room libraries visit to .

How to organize a lesson plan . Trading

Material , library training and report form city power organization, implementation trainings and St Peace college textbook reader module trainee

Description management and control a class during your teaching filing system form city power Eskom, compliance form issue filing day week evaluation and certified lemons instructions metering

Assessment functions

15..22.Requirement: implementation and stabilization to training visited trainee engineer, education..Anted examination training and labor inspection work inspection police inspection school ,compare industrial city power go inspection

-general inspection category: and training schedule,

Carrier training adducting modified I is additional training practical applications,

-cycle of training application auditing , visited plant operations

,Step may take long or short time completed all operator must develop the ability to detect the ability detection abnormalities positive result achieve by student visited places working training system main tenant power city equipment in good condition and St peace good performance examination time table assessment,

-autonomous inspection step 1,3 tentative inspection standards compared reevaluated to eliminate, detection and treatment of abnormal condition,

Minor servicing of machines ,molds, gigs and tools .

29.1Organisationtidness, autonomous maintenance.

Focused and elements:

- Operators responsibility organizing stand for operator responsibilities adhere to recording.kwh

-focus work and element promote organization and eagerly operation visual control work in control process product kWh / reader.

-measuring instrument and foil proof device, element inventory measure instrument proof device and make sure they functions properly inspection and correct deteriorate kWh metering city power training is work ,

-focus equipment precisions ,operators must check precisions of equipment kWh metering geyser is précis instrument,

-operation and treatment of abnormality,

16.Requireded hearted meter energy breaking component

.destruction.

Conductor.insulation.maneticfield .

kWh/ ..joule input copper wire..component heater Peltier .break.explosion system, limited stability load . circuit breaker load heater Peltier thermocontrol....metering limited breaking ,

Air cooling system breaking linear systems circuit wire cold.component cold ,,220v .6,6kv..Peltier heater load 220+20volt Peltier 240volt reactance heater system..

Operationel,

wrote:

34. Required: labour training quality body assessment,driven machinery regularite safety 1993,acting in term code practice., director.

17. content training city power and St peace practice assessment.quality body insured,duty authority and duty accreditation.saga and sasseta institut sets mseta seta labour skill development field of activities.

- training system record detention,time table subject learning reading

Lifting machinery .and machinery manufacturing management.

-codr description.

Counter balance lift true ,rated capacity of 3000kg reach lift truck..covoyer logistics lighting ...order .

Machine code compagny capacity .

Pre start check detection ,

Pre operationel test in control,total item uncheck theory ,penalties ,UN heked,Pre assessment X2= maximum,

Total Pre star and operationel, practical x time penalite item not specific ,penalite,body stack,fail stack correct position for travel close remove close down total operationel,time

.insurance logistics.transpirt Riggin material construction supply...

Drawings explanation: building compare St peace college knowledge design analysis

investigation.aystem engineering and trade theory

Designing system engineering electrical drawings,mechanical drawings, building drawing .

orthopedagie . lesson.orthopedagogie.system module activity.. reproduction analyse design.

18. 32. Required operationel Appliance customer to city power and more St peace college time table reception and attandance assessment engineering.

direct energy conversion system. The direct PDC MHD conversion system s.

Plasma dynamic conversion system is a method of conversion system is a method of converting thermal energy plasma in to electric power without magnetho thermic .display energy bulb electro tube basic electrical energy government watt solar she produce 03to0,4 kilowatt.

- insure generated energy

Lab segment development. Power of about 93kw, government RSA provide 50 watts solar home system rural bee20-30%renewablrs variation analyze method, input data,

Input scenario energy demand yes supply option yes ,use interface ,mesa database, reference energy ,tech coda parameters,messa gematrix , emission, new installation, result storage data ,option for supply electricity rural homes area 0,4 to 0,5

- Department of energy found total uncle trifurcate house rural unelectrifier,

Total population 0, 31x061=<5298 millionxo, 32x0, 62=1000, projection house hold bee

19. 33. Thermoelectric effect..generation product natural appliance vs metering effect energy.

Dc. Vs PWM supply type recommdation manufacture comparison of two technical control lin 25k ears vs system .

I/max when $dt < 25$.

I max should there 0,33, I/max ,dt >, I/ IMAX

should ,0,33-0,66 IMAX coefficient of

performance,CoP=QC/pel

Performance vs current,

Thermal controller heating,

Linear vs SMP tech controller 12.A up to 2x16A.,

-33.1.Design process:

-Estimated heater loard system appliance and power total

_define temperature.appliance and metering power system

-choosing a Peltier elements.

- heat sink

- calculate

- temperature sensors

-powe suply requirements

- Thermo electrical cool

& Design a complete system estimate

appliance guyser ,fridge and steamer system

-Thermo electrical material build .

Operationel principle, construction desig material,

Designing

-identification guyser stwMerter

-caracteristic,metery

Ie

Benefits: function heater exchange, uses consumer production industrial , science.

-object yes , metal plate yrs, Peltier yes

Q,heater sink yes Q.rth ambiance,

Estimation load dynamic,dQ/St. Load QC

transfer THS heat Tamb+ ΔTSH

[K].dt=THS -To=Tamb+ $\Delta THS-T0$

-COp=QC/pel..Max.min Pelton

dI..IMAX=68k,lmax=5A,Vmax=1,5A, current

and voltage,I=IMAX (IMAX)=5Ax0,45=2,25,

$V = \rho l / I = 16,7w / 3,83 \{7,42$
 Heater sink elements we need knowledge,
 required heater rejected vs current
 $Q_h / \max = \max = 0,6..$
 $Q_h = Q_{\max} 0,61 = 41, ..$
 , Operational
 34.requirement metering
 Logic system Min Ter max term .
 Control logic loop

Analyse function asservissement, radiotech radiostasie.

35.requirement operationel , information
 management system,, communication skill
 admi telecommunication computer ATM air
 time metering design transmission data
 system policy
 Control source traffic function Arriva

-Policy map input voice class voice not
 gateway interface ethernet,
 Service police input research priority yes,
 -ip on existing
 -inputline with
 -policy output data ATM .
 Class default date, use ,attack ,account,queen,
 delivery,dial session, description, switch port
 access, describe rout age, passerel.police
 regulatory communication metering appliance
 vs metering city power communication data
 systems ATM process framework
 regularity.over load transmission.dischage
 bill delivery, plan number control ,
 government implementation gov taxation
 government ..
 Police detective microcontrol VDC, Di/DT,
 fault..
 -- 33.2Required.analyse circuit system lineare
 limited Saturation vinput v output.permanent
 network input output meseare,
 $Q_{\max}, e(t) = u(t).s(t)$
 System lineare relay delay position circuit
 analyse metering heater guszer .
 System aeromecanism position.plc
 $Mean...e(t) = e(t) - r(t) =$
 Input output ..
 $E(t) = E \cdot \sin \omega t$
 $S(t) = S \cdot \sin (\omega t + f)$

DC system transformer tension speed
 Re

$R = \rho l / a \dots \pi \cdot d \dots s = 2\pi / d \dots$ screw.join cable make conductor...gauge...cable
 Density.volume.. d section across voltage mass cable kg , volume cubical cable cm square , area
 surface , meter cubical. Copper.aluminium.zinc.plomb.
 Oil .water ..
 Join cordon cable ferulure.mass join step make conductor .
 Skin effect ,Courson effect,joule effect
 Resistance to power current. energy..

$e(t) = v(t).s(t) = t.wt..command v(t)..$

Equation different linearity metering input
 system output system appliance ..
 $St (St).v(t).A.(t) = w + w..$
 Database data send kWh rather system send
 kWh ether reception transmission
 telecommunication..policy relay delay
 discount value 10@r,2,5kwh ..input 10kwh
 10rand buy system 8 rand transformation
 system asservissement.retard line power cash
 time arrival policy network.. system gov,

Metallic layer fabric oxyde metallic alluminuim
 material $R = \rho l / w \dots$
 $PCO = v_{coxl} \dots V_{co} (i_{\max} / 2) \dots n (p_o / p_1) \times 1000 ; ; ;$
 $v_{cc\max} - v_{cc} / v_{cc}$

Requireded : engineering science physic
 chemical.. electrical..power machine

:
 Construction architecture design file
 development.system input unity, control
 memorandum ram Ron outputs CTR display
 print,
 - data cou,ram ,rim,I/o,. 8 bit but memory
 system.logic diagram ..
 Engineering potential coefficient result and
 reducing voltage integration buy factor
 $3/5.initiL x =$ chart capacity .evoltage voltage
 solving different equation, 5
 $DX/St + 3x/5$.equarion incase voltage
 $DX/DT = 3x/5$.required output integration, full
 scale voltage 5 bit d/a covert 0,2 volt digital in
 analogy 1111 ,SB = 0,2:full scale output
 $= 31 \times 0,2 = 0,2$ A event bit D/A delivery an
 output current, 100mA,let $B = 10/20 = 0,5$
 mA ,,1110= $29 \times 0,5 = 14,5$
 Analogue computer camparebdigital computer
 ..
 Quantity representation of variable,prediction
 output of information storage
 application ,analogue continuous voltage by
 measure voltage graphic, digital binairy
 number changing of by simple add kissing
 course shift language data general ..wireless
 communication .
 Metering and supplies electronics .

P=R.I. T....

-test cabling material stress test eprouvet MPa cabling effect

deformation elastic plastic .PVC polymers polyvil caotchouc .insulation papper material insulated
cable join .plastic 220 volt
Plastic.ceramic insulation high voltage glass 1500kv

F= Qa.qb/r... €....

Cable

Mechanical resistance alumelec..maichor ..transformer join

Conduct hearth

Deielctric.insulator charge discharge cable .high voltage discharge short circuit..

Magnetic material.,field electromagnetic

Insulation conductor magnetic hysteresis ferromagnetic, H..b.i.u.,.

Coil making ..

Number support kV..number substation.

On Fri, 14 Apr 2023, 17:58 TSHINGOMBEBK TSHITADI, <tshingombekb@gmail.com> wrote:
19.. 47.1.Requireded: operationel subject field saqa . seta implementation

Saqa award certificate.

Assessment conduct seta

Saqa award diploma certificate n engineering.and

St peace college training skill.mseta CHIETA.. development panel and control wiring

**Level engineering electrical.infracture development. Meeting saqa requireded I'd..no
meeting statement skill [development.id](#) certificate award St peace college .db box outlet
socket switch dol motor.transformer.**

Control instrument mechatronics,

Career development city power graduat.implementation .career

Continue trade skill supplementary trade meeting month trade . foreman

ID: 258968 saqa commissioning domestic or commercial .

ID: 10259 saqa fault find repair and maintenance tree phase , electrical engineering.

ID : 263006 saqa ,demonstrating wiring of premise defining

ID : 258937 ,install ,maintain low voltage,DB protection

ID116466: inspection and circuit ,

ID: inspection and maintenance control and control panel and circuit ,

ID111388 :saqa electrical engineering and construction

saqa I'd 67461: N3 code instruction category meeting ,A,B,C,..

**Level2,3 ID : 258937..plant generation , distribution, construction mining chemical and
energy sector, maintenat,DB, protection,electrical safety cleaning,**

--scope of work specifications.sans 10142,

- circuit breaker ,isolator, contractor and relay ,install Db , inspection Db ,

ID10607, 10605,10634,

- replace fault

**-ID 116434: control electric network from a control electrical . Centre sgb ,power
plant .field manufacture engineering and manufacture.**

-Switch way panel wiring education technology.

I'd ,electromechanic .electrotechnique .. teacher I'd .saqa .

-47.2.requirement n diplomat engineering.

**ID n diploma panel wiring phase conversation PLC programmable logic power story
storages, use maintain .graphic diagram design, St peace college outcome career
generation power station and**

**saqa award degree diplomat continue supplementary assessment student subject choose
trascrip record no meeting engineering electrical diplomat dheth . Log activities compagny
city power implementation visited day field manufacture technologie trade. Training**

- interpretation drawing electric code graphic.

Purpose. Assessment : explanatory electrical plan create electrical plant .

Content ,with is purpose benefit of electrical , metering city power and St peace college workshop

- how to draft an electrical.

- tip for making electrical plan , interconnection of different component and fixture to the system .in training cooperation.visited

- power line with details such as size voltage ,rating , power transformer and winding ,the main switch breaker and fused switch,

- draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pla building.,tips for making electrical furniture light switches and electrical outlet,

- plan for additional outlets renovation,Amount table Lampe,yea,later ,appliance wiring plan,

-electrical plan legend

Celling mounted light ,duplex receptacle,telephone outlet switch.

- basic electrical plans ,

- patients room electrical plan create your electric planfirm a patient ,

Basement wiring plan

--when listings out item such a feeder breakers and wire size,for particular project piece of distribution equipment ,

Intern of electrical distribution,

-schedukes are often included switch board and panel board, drawing to list number of circuit breaker load feeder ,size and number of wire ,

Project

Schedule usually expressed in tabuled,organised self explanation.

-typical ref, legend and

- build drawing s:

Construction project is completed is revised drawing,created and submitted,constructor ,high,any charge

i-nitial design drawings .

-Construction process completed .

.

-Electrical drawing and schematic.

-designing installing troubleshooting electrical system requirements use variouse ,line represented.

- design engineering and technician use schematics to build and troubleshooting

-one line diagram: medium voltage switcgear one line diagrame , and power systems single diagram.

Is often drawing flow of electric.

Typical: major components in the power systems list system voltage , transformation impedance , interrupting rating and fault current just the basic .item

-Drawing should be kept .

- main control room of a

-switching operation buy identifying feeders and the load they serve,

- system voltage frequency phase and normal operating position line diagram,

- for more detailed view of an electrical distribution system,three line diagram is used phase polyphase A c , system drawings, connection.

- diagraphme show distribution component such bus rise ,bus plug ,panel,board , transformer ,small ,branch circuit, drawing alarm, system,

-schematic diagram

Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel

Found ,inductor ,diode ,logic gate, fuses contact ,switch ,every circuit,

-circuit breaker control schematic:

wiring diagram.terminal for selection terminal ,relay ,load detector relay wiring diagram .

-main purpose of a wiring diagram electrical circuit arrange, schematic diagram,

- wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair ,

-Block diagram: reference input filter sum ,controleur actuator process plant, distribution,sensor.

- arguably ,basic type of electrical drawings block,diagram, components of complex systems,form of block,internnected,block provide a conceptual,idee a process is completed, electrical,

Symbol.

Represent schema

-logic Diagram: current gate and logic gate clock

- breaker faillure relay logic diagram .

Modern protective relays utilisation diagram to represent complex circuit process .electrical.

- schedules.

A buid

Electronics use soldering and desoldering . system..welding iron ,solder ,silver,or copper lead , desoldering,plug ,outlet ,cleaning disconnectorb,connector.printer circuit fabric film microship process. Silicon.plastic molding..

Fit recess .fit wiring .process..

Control

- instrument method selector design metering process

Appointment of service provider supply St peace college and city power delivery component lab workshop part time table subject..

-introduction golbak stage St peace college .

-Scopes of project: projection requireded supplies to purchase and deliver total ,.

-Special condition component

Subject module metering

4.purpise documents.

Budgets: a projection budgets St peace college city power time table fee.burasary.close graduation internship fund student.gov

-Quotation value tax (vat) project :

_time frame project is to commence success bidder

Firm price subject , name of the compagny quotation close

Appliance and compagny subject.

- item description of good part number quantity

Evaluation criterion (80/20).

-request for quotation number

-limitation to quote supply and delivery

Item/ description of good //quarit///price/// bid price RSA

001 /engineering electrical practice workshop projectye engineering open view lab test lab and

workshop practical saqa .dhet training exam papper .seta . asssement police //// amount

estimation fee

Total include .8modul x 24subject x3month 200 projection years aman's test experimental

technology.training integrity one project ..

-deliveri period

Specifications requireded for project:

Item,

part numbe

r, performance b,

size,model

Inlet .

Outlet .2.12

-

:

$T=1/\lambda \ln 2...$

Unity design	
--------------	--

<p>- : Metallic layer fabric oxyde metallic alluminuim material $R = \frac{\rho \cdot l}{w}$... $PCO = v_{co} \cdot l \cdot \dots \cdot V_{co} (i_{Max}/2) \dots n (p_o/p_1) \times 1000$;;; $v_{ccmax} - v_{cc}/v_{cc}$</p> <p>Requireded : engineering science physic chemical.. electrical..power machine $E = T_1 - T_2/T_1 = 100\%$, $VP/P = VRT/m = v \dots sq$ Efficiency=$w/Q = 1 - T_2/T_1 \times 100\%$ $P_1 \cdot V_2/T_2 = P_2 \cdot V_2/T_2$ $W = W = P_1 \cdot V_1 \cdot \ln V_2/v_2 \dots$ $SF = 4,187 \ln t_f/273 \dots$ $T_2/T_1 = (P/P_1) \exp r - 1/r$ $W = P_1 \cdot V_1 - P_2 \cdot V_2/r - 1$ $PV = M_1 \cdot R \cdot T$ $Q_1 = m_1 \cdot C \cdot \Delta T$ $Q = m \cdot l \cdot v$ $U = m \cdot C \cdot V(T_2 - T_1) \dots$ $(V_2/V_1) \exp r - 1 = T_1/T_2$, $\mathbb{F} = CP/CV \dots$, $R = c_p - c_v$ $W = m \cdot R \cdot t \cdot \ln (P_1/P_2)$ $P_1 \cdot V_1 \cdot \exp r = P_2 \cdot V_2 \cdot v_2 r$ $W = m \cdot R \cdot \ln V_1/v_2 \cdot (T_2 - T_2)$ $f \exp 1 = f_v/V - v$ $f \exp 3 = f(v+v)/v$ $V = \dots f$ $f = C/2 \cdot l$ $V = \sqrt{\rho/p} = \sqrt{\rho \cdot R \cdot T/m}$ $V = \sqrt{F/u}$ $V_2/\mathbb{F}_1 = V_2/\mathbb{F}_2$ $f = f(v + V_o/v + v_z)$ $f = 1/2l \cdot \sqrt{p/m}$ $E = F/Q_1 = Q/4 \cdot \pi \cdot e \text{ dr} \dots$ Electricity. $W = Q \cdot V \dots \dots E = m \cdot g/q \dots \dots E_k = w = vq$ $Q = C \cdot V \dots \dots E = h \cdot f \dots \dots F = q \cdot E \dots \dots E = 1/2 \cdot C \cdot v \exp \dots \dots V =$ $m \cdot g/r/Q \dots \dots t = R \cdot c \dots \dots S = w/F \dots \dots r = Q/4 \cdot \pi > \text{for}$ $V = k \cdot Q/r \dots C = \epsilon_r \cdot \epsilon_o \cdot A/d \dots \dots F = k \cdot q_1 \cdot q_2/r \text{ sq}$ $E_k = Q \cdot v \dots \dots e = v/d \dots \dots 1/c = 1/C_1 + 1/c_2 \dots \dots v = \dots f$ $W = 1/2 \cdot Q \cdot v \dots \dots m = EQ = (V/r) \cdot Q \dots \dots C = k \cdot \epsilon_o \cdot A/d \dots \dots q = F/$ $m = EQ/m = vq/SM \dots \dots$ $W = vq = 1/2 \cdot m \cdot v \text{ sq} \dots \dots @ = Q/4 \cdot \pi \cdot r \dots \dots w = 2/2 \cdot c \cdot v \cdot \text{sq}$ $T = 1/\text{lamb} \cdot \ln 2 \dots$</p>	

:
Construction architecture design file development.system input unity, control memorandum ram Ron outputs CTR display print,
- data cou,ram ,rim,I/o,. 8 bit but memory system.logic diagram ..
Engineering potential coefficient result and reducing voltage integration buy factor
3/5.initil x = chart capacity .evoltage voltage solving different equation, 5
DX/St+3x/5.equarion incase voltage DX/DT=3x/5.reauired output integration, full scale

voltage 5 bit d/a covert 0,2 volt digital in analogy 1111 ,SB = 0,2:full scale output =31×0,2=0,2 A event bit D/A delivery an output current, 100mA,let B=10/20=0,5 mA ,,1110=29×0,5=14,5
Analogue computer compare digital computer ..

Quantity representation of variable,prediction output of information storage application ,analogue continuous voltage by measure voltage graphic, digital binary number changing of by simple add kissing course shift language data general ..wireless communication .

Metering and supplies electronics .

Re

:

40.8..Requireded: award degree diploma

saga qualifications I'd : assessment no meeting requireded.transcript completed supplementary subject : foreigners transcript.saga qualifications I'd :71638.

Higher qualifications.

Primary registration status,saga decision number, saga 091/21.

Registration saga assessor conduct certificate .

Saga I'd instituts [foreign.no](#) meeting instituts accreditation saga decission.

Admni /30-39 NC's.

Total credit .

-assessment policy IE099-IE00.regular internal,

Saga decission 10105/14 advance diploma intermediary phase teacher.conduct...

.n1-n3 national certificate engineering studies.

-N1: Saga ID6710, N2 saga ID 637375,N2 saga ID 67491..Entrance...

I'd saga award diploma N ...

Ncv assessment plan isat .

40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,... topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...training exam rwiten permit and time table practice exam days.

Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grade..

Isat integrity practice..time frame .allocation require ..

41.1..required city power vacancies

Estimated ICT service

Research inovation:

-table of content .

Graduate internship

Training center employee.visitor student apprentiship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training.

1.city power vacance 2023.for officer special and variations use career opportunities.

Training oppoy . metering guyser . light city .training engineering career.

1.1 How to apply for city power vacances 2023.. student career granted.

-meter reading submission: St peace college time table engineering electrical Portofolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. interlock system.training

partnership test . outcomes career student generation power station transmission trading .

- city power workplace ready to light up career artisan engineering.

- name of profile

- city power .

-manager vacance.

-city power officer vacancy.

-city power specialist..

-

i

40.10..requirement : implementation

--SAQA module award diplomat

-Award diploma n.engineering electrical

-Award instituts foreign decission saqa

-registration .award saqa n1,2,3,4,5,6.

-Award meet documents.

-Assement assessor saqa conduct moderator

I'd: 202001305040/20191130002

Dhet exam nated: 201000203812/2004007064381/2011007434332..

40.10.1 requireded of work experience logbook instructions programme code

5090840..national n diplomat.engineering studies electrical I'd :90674.engineering studies

NQF level6, 360, credit saqa learner I'd 67043 national electrical engineering

nqf .level6..learner

name :tshingombe Tshitadi

,surname : Tshitadi Fiston.

Number employeer :

Details compagny St peace college city power:

Name signature...

Trade test technical environment

Date : sign...

1.code.wA.0201

Purpose assessment entry Scope.

Assignment question answer assessment evaluation qualifications St peace and city power metering

Interpret technical drawing: .evidence checking the drawing confirm relate equipment in accordance stand operational procedure reading information written .

Design db box outlet socket .

2.undertake numerical undertaking numerical operational geometry and calculation formulae

Scope .

Terminate and connect electrical wiring

Date .

Signat

Material conformance checking and existence new installation site correct location.

Specificat

W0302 checking existing and new installation .making terminal,connection. .

Specifically .

Manufacture.adjust and fixing wiring support tagging and labelling cable,wiring ,conductor and connection .undertaking , specifications testing of wiring and conformation to specific .

Connection for conformance to specifications.use language .

- interpreting circuit,drawing .preparing work plans in accordance with legislation and regularite requireded stand operator.using measures for installation testing electric wiring circuit .testing wiring enclosure and support system .indentification compliance relevant ,energising testing installation identify rectifying.completing report and documentation using short circuit comment relevant terminology,considerant plan Ning rescues or provision of assistance,isolating electrical hasard safety changes controller operational parameter ,
Conditions air and refrigeration electrical special dues trade that lead diploma need experience ,
-Construction high voltage installation .

-substation ,

-pane wiring

Armature winding ,

-A. Running test function and recording fault and or equipment status indicated by built in test function . equipment sub assembly, components connection and terminal ,
 -removing replacing components and termination for confoi,isolating electronic , returning calibration electronic equipment sub assembly.recording ,obtaining relevant circuit ,schematic manual ,isolating tagging ,and verified.refitting sub assembly ,
 -specifie sub assembly,schema electronic recommissuoni g electronics equipment ensure,entering routine electronic ensure conformance,
 -drawing reading drawing job . documents listed.maintenance .single phase.

-Repaired control loop system look evidence that confirm skill.obtain and interpreting engineering specifical technical information software hard .data diagraph historical to system components and operationel.

Consultant system other relevant plant personal with respect to control loop characteristics.
 Confirming function malfunction of the system.
 Component . checking operationel character controleur device,signal conversion instrument and final control element .
 . identify fault the control loop for correct operationel .monitoring the response of the control system , using appropriate fault find diagnosis technicien and procedure throuth technical.
 Monitoring
 Comparing collected data.operationel.
 -engineering . dismantling..service item setting appropriate test and calibration equipment w..control mode checking control ..install commissioner the control interpre data calculating control loop characteristics.install calibra.access and final control accessing data sheet. Circuit.diagraph engineering.install sensor..identify cabling conductor .locating inspecting ..
 Criteria

Trade manufacture seta merseta sasseta accreditation .saga assessment training

-Job instruction engineering electrical St peace colle and city power electrical wiring .statutory and regulatory.connection support..

Method material.test wiring for approval work

Learning technical outcome.self checking ..

-activity log sheet.state following equipment hand tools . Desoldering tool soldering fiting welding pencils

Activity :voltage power supply.long Bose portable electric hand drill.drille EXC.

Flat screwdriver used driving or fastening positive slottel scree.flat screwdriver is used in driving or fasteriing.join two support lead melted around,side cutter pliers used for cutting or terminal wired testing .soldering .join cable .chisel.resistance .ms program..

-hNd tools label program.criteria .score .identify.tool...

Terminating and connecting electrical wiring and electronic circuit.test termination . asservissemnt criteria.

Practice...

Dhet..faculty electrique engineering.

Completing diplomat logbook.application application

-Subject : electrique trade theory, industrial electronics, engineering science, mathematics, electrotechnique drawing engineering..

-Logbook cover page.: St peace college

Exam internal assessment and external

-application letter :diploma St peace college assessment circular irregularite final award saga qualifications award diploma , certificate.vist city power training career inovation trainings

-Letter from your employer.career St peace college trade practices assessment engineering.policy practice school engineering.

-date period work specifically subject n6; qualifications irregularite..regularite assessment.. Portofolio evidence

Poe: assessment policy evidence low

-Candidate work 18month St peace college time table trading practice asservissemnt criteria saga.

Completed duty .

-Duty city power St peace career patrol

. Certificate I'd

-Summary: academic info n4.n6..

Irregularite assessment police Poe's relate low .

Copy statement 12; subject n4.n6 ..

Subject condonation award.subject irregularite trade theory .. transcript academic time table.. maximum one,

2.relevant work experience .apply for diplomat, engineering electrical note adminwork experience in government departments ..qualify development social.energy . education department assessor, instituts

Unity description	Yes /no
<p>Regulation %= $(220-210) \times 100 / 210..$ Equivalenlent transfo..$E2=I2.Z2+V2..$ $E2-V2=I2.Z2...$ _estimal 20kva,2500,500v,single phase tfo.winding $r1=8ohm$ $x1=17 ohm$. Wining $R2=0,3 ohm$,$X2 =0,8..$ primary voltage 2500 ,. 0,6 solutions $E1=2500v,R2=500v$. Turn ration $N=2500/500...$ Ration $=E2/E1=600/2500=0,2..$ apparent power $s=20kva,.$ $I= S/E$ $=20kva/500=20 \times 1000/500=40A..$ - -refering to secondary side. $Ro2=R2+k.square r1=0,3+(0,2) square \times 8=0,62 ohm$ $Xo2=X2+k$ $Square=0,7+(0,2) square \times 17=1,380$ a) 0,8 lagging Volt.reg $v=12 Ro2cos \# +I2 \times 0,2 \sin @/E2..$ Volt reg = $40 \times 0,62 \times 0,8 + 40 \times 1,38 \times 0,6/60$ $VR=52,96/500=0,10592,.$ % VR =10,59.. Secondary terminal voltage. $V2=R(1-v2)$ $V2=500(1-0,10592)$ $V2=447,04..$ 0,8 of leading. Voltage $vR= I2$ to square .$cos@-I2 X2 \sin @/ E2..$ $VR=40 \times 0,62 \times 0,8 - 40 \times 1,38 \times 0,6/500.$ $VR=0,02656..%$VR=-2,656%,,, Point to key Secondary terminal voltage. $V2=E2(I-vr)$ $V2=500(1-0,02656)=513,28v.$ $VR..VR=12Ro2 \cos @+,I2Xo.sin@/E2.$ $VR=40 \times 0,62 \times 1 \times 40 \times 1,38 \times o/500.$ $VR=0,0496...VR=4,96\%$ $V2=E2(I-vr)$ $V2=500(1-0,0496),,v2=475.2 volt..$</p>	Estimation

:

40.6 management multiple background task and interrupt driven system. Clusters system information connection

. Monitor display , basic knowledge suggestions reading embedded engineering electrical.

-basic circuit theory ,fundamental ,how to configure pin microchip microprocessor

Hard basic trainer board work station PC running windows Mavis Linux 13v DC motor power main gate
gate mlabx cross compiled spreadsheet excell log entry visited internal external St peace college
engineering access and city power access meeting agendas minute .

- project takeaway : how to read analogies voltage compare to implement a capture period measure
fundamental digital, open loop and closed loop process control ,

_ fundamental concept unit introduce process control electromechanic I/O.

Process control: automate process control engineering deal architecture..

Automate process .signal yes control loop processing microprocessor computer fax signal yes, signal
yes amp ,signal card , process yes ,tacho meter yrs , open control yes record count positive yes , , ,

40.7 maintenance inspection: components program,

-inspections check operational back ,

-inspections lighting inspection:bulb regulatory exam control ,transformer hardware and and gasket
exterior light,

Electrical inspection: being simple carbon monoxide detector,as well as flashlight and testing
equipment timers and photocell, should be inspected and exhaust fan,

HVAC inspection bfilterdict filter

41.purpose. Study case ..St peace college energy rural and city power energy.

4.1. Electrical grid system design to provide electricity way from it generation to the customer
system ground from design kilometre and connection countless complex interconnect.

Workplace workshop practical projection ..lab system fundamental

Test problem required..

Eskom and city power ,

-generation electricity ,power plant want to convert mechanical energy of turbine into energy use
generator except solar power , photo voltaic cell ,power plant ,energy fuel. St peace college
workplace.

Test lab experimental practical.

Result recording operational:

kWh ..kV..day

- transmission :large high power line are crucial component .power plant pass through stepped up
voltage voltage increase in electricity by transformer .by distance with typical maximum distance.

Result recording operational test.

kWh .kV.k day

Reasoning step up transformer are used is when long distance a conducting.long distance.loss energy
problem acceptable level,

Estimation Pre test metering transmission grid extra high volt 265 to 275 kV AC , DC joint power
station 600Mw, and power station 600-1700Mw,,hydro electric plant 200MW.. transformer industrial
power plant and medium size power plant 1500 me..interlock 110kv and up . joint connection
distribution grid transformer 150mw power station metering city power plant , 2mw industrial
customer power station , solar farm ,eolian farm ,rural 400kw,50kv transfo metering buildings house
dispatch .

Estimation constant inspection area building infrastructure.

Test lab open views switch gears inspection fault .circuit breaker fusible ,Relais

Power system of electrical increase decrease note lab

Supply test month average costly

Methods use for switch control circuit during normal operation, permit to switch off on the
generator ,transmission distribution equipment.

If failure occurred short circuit heavy current pass.feature switch .

Switch operate in order isolate health system b, discrimination,,switch air break switch medium,

- oil switch they operate in oil arc that occurred fuse joint ,anormal temperature.
Daily week time open ,time close date

- circuit breakers: switch can disconnect the circuit but it is done equipment which open close a circuit under all conditions like ,full a circuit fault condition ba circuit break can operate both manually can opere under high voltage type current .
Test day daily month ,

-relay: is basically a device or switch detect fault system then it provides the information to circuits breaker ,

- can operate to prevent the health .

Primary relay is connected

Relay trip circuit ,relay electromagnetic induction test ,

Type of switchigears,2 outdoor type,2 indoor type,66kv ..

Test transfer function is networks the magnitude, $1/\sqrt{1+T\text{-square}.Cs\text{quare}}$. phase shift network..

$V_i/V_o=1/RC/JW+1/r.c$..test close open system ..

Test generation : phase synchronous machine electromechanic energy conversion device operate on synchronous,speed,of rotating magnetic,field , synchronous machine,based energy, synchronous generator . synchronous rotor .

- $NS = 120f/p$, f the supply ,p is the number of poles in machine,

Working principle

key principles

key features : sychronouse motor asynchronous motor ..self starting , synchronous machines excited machine requireded,machine two applies one DC , synchronous machine operate at constant speed called synchronous speed, generator voltage of constant magnitude can be operated, lagging, leading unit , synchronous motor relative, ,

Test daily week time load

Relever trade. Integral derivation day

Unity description	Yes/not
<p>Equation of sychronouse motor . $V=E_b+I_a(R_a+Jx_s)$. Voltage v.eb back EMF .is armature R_a armature resistance .on system day working duty shift -resultant voltage: difference between the voltage applied v.and back EMF, $E=V-E_b, \quad E_r=I_s.(R_a+jx.s)$ Back EMF generated: $E_b=k_a.\phi_a.N_s$ $\phi_a=$ constant of the armature,ϕ_amagnetic flux perpoles, $N_s =$ synchronous speed of the rotor $E_n=v$ normal excitation lagging power factor $E_B < v$ under excited.over excitation. Input power: input of synchronous motor $P_{in}=v.I_a.\cos\phi$ per .phase $P_{in} = \sqrt{3.v.l.I} \cos 3\text{phase} ..$ Mechanical bpower in rotor $P_m=T_g.NS$ $P_m=E_n.I_a.\cos(a-\phi).$. $P_{in} = \sqrt{3.v.l.il.\cos\phi}-3.I \text{ square}.ra..$ $P_m=p_{in} -I_a.Ra..$ A load angle between en and v, angle between band I_s ,the is gross torque products .N_a is per synchronous.</p>	

- stepper motor Step angle $\theta = (ns - nr / ns \times nr) \times 360$.
Step angle the angles of rotation of shift .NS = number of stator / number..poles .Mrs of poles

Motor asynchronous..nr-ns/NR slop squirrel..star current as..z.c .p.
DC motor machine ..
Resolution 360degre/ beta accurate of stepper .n motor speed.n.

Requireded learner induction machine system engineering electrical St peace generation GB ..machine system hr resource compatible run

.-transformer three phase
Connecting start delta zig zag.primary wind , secondary winding, . interconnected order phase clockwise power .
 $Y \dots VP = V_l / \sqrt{3}$ Vol= $\sqrt{3} \times v_p \dots$
D. $VP = v_l \dots v_l = p \dots$

Y.Δ. Turn ration
 $TR = NP / Ms = VP / \sqrt{3} \dots 1/2 \dots \text{step} = 1 / \sqrt{3}$
 $\Delta \dots TR = N_p / NS = \sqrt{3} \dots v_p / v_s$
.Delta delta line vol primairy secondary $v_l \sim n \dots v_l \dots$ line current primary IL / n .
Delta star $v_l \sqrt{3} \dots n \dots v_l \dots IL = IL / \sqrt{3} \dots n$
Start delta $\dots v_l \dots n \dots v_l / \sqrt{3} \dots IL = \sqrt{3} \dots il / n \dots$
Start start $v_l = n \dots v_l \dots I = IL = IL / n \dots$
Estimation data 50 Va supply,line voltage 100v , primary turn 500, secondary turn 100, $n = NS / nP = 100 / 500 = 0,2$
 $\dots v_{line} \text{ sec} = \sqrt{3} \times n \times v_{line}$
 $= \sqrt{3} \times 0,2 \times 100 = 34,64 \text{ volt}$
-V phase sec = $v_{line} / \sqrt{3} = 34,64 / \sqrt{3} = 20 \text{ v}$.
 $I_{line} (p) = V_a / \sqrt{3} \dots v_{line} = 50 / \sqrt{3} \times 100 = 0,289 \text{ Am} \dots$
 $I \text{ sec} = I_{line} = I_{line} (per) / \sqrt{3} \times 0,2 = 0,834 \text{ amp} \dots$ construction...
Transformer voltage regulations..
Voltage regulation or percentage value by which transformer output terminal voltage varies, up or down from it load value...
Condity when $IL = 0$ open circuit to fully load $IL = i_{Mac}$ maximum current for a constant primary.
, Regulation=change in output voltage/ no -load out voltage
Regulation = $v(\text{no load}) - v(\text{full-load}) / v_{no} - loAd \dots$
- percentage
% reg (down) = $v(\text{no-load}) - V(\text{full load}) \times 100\% / v_{no} \text{ load} \dots$
% reg (up) = $v(\text{no - load}) - v(\text{full load} \times 100\% / v_{full} \text{ load} \dots$
Estimation transformer has open circuit no load terminal voltage 100 volt and same terminal voltage drop 95 volt on application of connection load transfo regulation ..0,005 or 5% ..
 $(100-95) / 100 \times 100\%$
 $V_1 < E_1 \dots E_2 = I_2 \dots Ro \dots xos^2 + I_2 \dots Xo^2 \dots sin^2 + v^2$
 $V_2 > E_2 \dots E_2 - V_2 = I_2 \dots Ro^2 \dots cos^2 + I_2 \dots xo \dots$
Capacity load x 100%

40.2 required purpose.control .lab

-introduction lab is to investigate application of embedded control controller to real time algorithm that employee analog input and ansglog outputs engineering electrical St peace college time table and

city power training days care computer algorithms to implement a closed-loop processor from machinery or motor speed hortorinh .conduct system manager security physical.hin feedback can used to lineare inherly non lineare process and results in zero steady state control errors, -objectivity assignment engineering electrical time table and training city power St peace college. 1.general power output to implement system management variable machinery motor supply voltage. **2.implement a tachometer operation using pic timer engineering electrical and trade.** **3.develip program code academic to implement a picture**

40.1. requireded: case student training practical school and practical schools engineering faculty, saqa registration .setat registration St peace registration
Practical school learner secreatairy help school efficient ly by performing clerical task support principal,work in building along with parents and student school often .school mission career, no formal edu post high school college St peace ,job gate welcome visitors,students making appointments,maintening student record handing incoming and keep the school website event update calender ..St peace training and city power training to city calendar.

40.2-question how to construct impressive teacher Portofolio learner training . Portofilio evidence.career job .degree scotllande .

40.4.education leadership and management .St peace college and city power management trainings work subject.

-School engineering electrical training practical governance .online master of educational management on line honour leadership inovation.bucheler saqa qualifications award degree diplomat learner practical,

-40.5 guide formative training homework qualifications saqa diplome d etat homework back laureat Management school...gestion school established school modernization exigence democratic.registration inscription student generation attributes.card admnission . logiciel

Computer logiciel management schools process tools decreased product task .modules function information school college admnise division ,class St peace , management of campus.management student status, tutorial family.

-Management faculty eny: classes engineering electrical lecture professor and training.planing honorable planning, assessment.yes

-management examination time table.inspection work permit at peace college adm I, exam questions attributes classes evaluation scores,genure reports

In city power external training job

- management schools fee bursary Engineering.step.

-principal planification . organisation orientation school professional St peace college manual guidelines, administration school at peace give to learner policy instruction assessment learner to participate in circulum and visited subject.

Test

PC school air time

-functionnality test education program .note globally service global services client .

functionality,rapport .quality.

Administration at peace collt give

.the role of school management.school date the class and the power hierarchical function activities roles function rectorat at peace college and charge of training external company government definition.orientation school professional source stress school stress .

The level students adapte situation place social development projects government state teacher inovation democratic access in the age of leave work children. child care . level diplomat.

Time table admnise evaluation statement report teach class subject counseling portofilio.means transport place .source difficulties for training transport.training social practice apprenticeship engineering course was orientation to the space place long distance initial to monitor, education specialist in St peace college domicile

.filing animation social model

-.the administration workable of Poste school . description post administrator supervisor.task school administrator college etablissement good function to teacher vocational and the trainings .

Task functions.budget manage logistics give line to marks reference.

-chargr admnise to coordinner all the process administrator management political and evenement .to resolving conflicts problem school in training [external.to](#) response counseling students resolve conflicts

-legislation school subject after assessment Portofilio evidence learner excepter deall misconduct
 pfense discovery learner in St peace College.
 To city power work.
 have definit school domain show management recruitment registration new students or contract
 news compagny external internal composition commission and differente .,
 - counsel teacher difficult entry dismissal.procedure.prise ,
 Committed management schools circular framework.importance,
 - to have definit sanction and reward primary deceive procedure input in case of abandoned post
 graduate or leavers school to practice or irregularite . sanction in education News legislation.or skill
 development implementation [learner.in](#) St peace [college.hr](#) ruling .
 -practical school report rwiten efficient parental learner in induction learning student at peace college
 to going to city power to complete a project class assignments.assessment year report primary tracker
 run circular summative.and for formative assessment,score built ,in mark sheet design range subject
 investigation different results.expectation accrose range assessment results.defined and speedly
 assessor workbook strategy report run regular census data cloud policy,
 - week course audiovisual and social class room creation ICT technology digital tools learner critical
 digital literacy , -international studies in educational inequality theory .skill student basic employee in
 access to different level level of education academic understood generalite theory outcomes system
 worked primarily school junior .ethic deontological generality legislation school ruling resourcereality
 legislation school and principal admnistrator act importance in saqa qualifications citysen to
 frequently industrial.
 -Duty of chief college and department management schools, . political public education state
 evaluation,control priority norm posterior.level organisation type model office bureaucracy.
 _flexibility of circulum,
 -characteristic of students and training St peace college to training caraceteristic job compagny city
 power,to give a good operationel results projection goal target day visit,
 -management leadership measure political principal objective professionalism in job training
 characteristic direction ordering collegial.counselling director .
 Management intermediate division organique function authority administration directives,
 professional and pedagogy training, execution government, judiciary low . legislation low
 schools.functionnel authority teach assure orientation coordination pedagogy
 -.situation curriculum flexible examen national Central administrative contract d 'autonomie protein
 project study chief of .changement of authority power of teachers society civil offer influence
 democratic in circulum assessement.and training examiner

—

to
 me

**50.2.Requireded: engineering St peace College, ensuring maintenance care components
 discovery,idee improvement tips self no coping constructive bridge design ,defey force
 militaire operation ,
 Policing investy resolve of crime frame work regulatory collating information indentify
 crime , engineering,
 -Defense militaire operationel force
 -mil STD 13231, content ,paragraph application general ,standard ,other goverment ,
 publication ,order of precedence , definition , commercial entity gage , commercial off the
 shelf cot product, containers,decalmane,design activity documents functional marking
 engineering,
 -joint electronics type designation system industrial St peace college .industrial electronics
 safety factor low defender land.
 -Manufacture identification, nato supply code for manufacturer nscm , nomenclature,order of
 precedence, part number identify number safety electrical trade theory safety manufacture sabs sans**

health outcome .

Procurement instrument identification number, set selected item , drawing , sequence marking unit , safety and police framework low system manufacturers St peace college , General required general government name and type number , join electro design system , St peace college CCTV , alarm safety trade control system offensive training marks manufacture award , Army nomenclature system identification number : I'd permit St peace , inspection contractor Gove gagr identification b,

Limited used multiple use special item identification college , use of unity pack bag, reference design government bdesignator, procurement, electronics tubes electrical part tubes, name plate data for article, special requirements for marking of container, identification of set article of or , identification, marking article/battery warning high notice radio active, ion ionising radiation, technical literature caution: safety électrique OSHA sabs IEC commission St peace college system manager, schematic wiring and cable diagram , chassis identification modification work order number, sensitive electronics device, location of marking

, general marking process: , marking on surface size and form of character label, material process radius of careers , mounting mountain spectral Gass opacity permanency Nd durability, facsimile, issue marking for air transportable procurement permanent legible, subject .

50.3 system engineering management, system engineering process , sabs sans St peace time table outcome career engineering safety electrical engineering generation transmission. assessment require

, required process and analyse allocation , function analyse allocation, design synthesis, verification, system engineering process

-system analysis and control , work break down Struct, technical review trouble

model and simulation . metrics . risk management risk management

Planning organising. product improvement strategy organisation and integrating system development, contractual ,

-system engineering fundamental introduction, : general , application, referred facility grounds system grounding Nd power distribution system . St peace college safety career generation. policy Bonding shielding and grounding relation grounding safety. relation investigation low cabling geotechnical city power Eskom and customer occurrences report.

- lightning discharge fault protection noise reduction summary of requirements, resistance to earth communication lightning required typical resistivity summary, soil effect effect, measurements of soil resistivity, measure technical, one electrode method four terminal , earth electrode , system, general ground rods buried grid plate s metal frames, water incidental metal, resistance properties simple isolated electrode , ,

Transient impedance , electrode , fall of potential metal extension , test point

- lighting phenomenon influence of structure height , strike like hood attractive less than 1000, flash parameter mechanical thermal conductor impedance inductor capacity couple earth ,

-fault protection : power systems fault ground circuit interrupt, Conductor direct current resistance, alternating current impedance skin effect AC reactance proximity effect, resistance property vs impedance property , effect geometry, standee cables , rectangular Conductor tubular Conductor, structural ,

- signal substation : networks configuration.. signed point ground lower multi ground higher frequency plane

Defense mil STD 1285D,

Fsc5920,, circuit breaker FSC 5939 switch thermostatic switch rotary shall sequence counter, open frame construction color passed molding, Google switch , printer wiring standard data regardless, data is applied directly surface information described , intend , use , issued of DoD marking for shipment, serial transportable item procurement, permanency legibility, name caution plate caution ,

Mil 200 system reference government , non governmental whose identified gate drawing format size letter and . drawing numbered system duplicate of assignment number,

Output. physical architecture product element and software code decision database. input function architecture, enabler inputs decision database automated tools models,

-control constraints gfd cot resolvable system , concept subsystem choice organisation procedure, Reusable SW system concept subsystem choice ,

Activities: allocated function and constraints to system element, synthesis system element alternative, assessor technology , alternative, definition physical, definition system products wbs development life cycle technical integral system select preferred concept

$P.E = q.v$ [q.is](#) charge moved voltage rate difference other change.

$P = I.V$... $E = P.T$., Talk = resistivity . /a ,

$$H = \Delta c m. (T_1 - T_2) ..$$

$$-P_l = v.i.\cos..$$

$$I_L = p/v.l.\cos \text{ unresolved transmit } 1009.10 \text{ m w..at } 10.\text{kv.resistance of } 100\text{km}...$$

Wath current need to transmit

:

Requireded: metering system decimal relay rotational test ,sequence line,cut off ,direct switch register ,in the group in which the calling division starter search for pilot switch .a time device, switch finder respond pilot ,switch final connector ,signal controller send impulse stepping ,interconnector ,div ision

Alternator . Loading effect heater current

50.require regime sinusoidal

Transfor mer Group 1 hour induce clockwise radio .. Group 1, hour indice 0,-4-6 Group 2,hour indices 0-10-2 Group 3,1-3- Group 4-2-11 Connection couple YY. M= n2/n2. Y.d. M=N2./N1.√3 Dy..m=n2.√3/2.N1.. U1.=4,44.n1.sfb.. N1=u1/4,44×sfb.. Loss ion .copper. : Uco.Ico.cosn ZS=m.U1/I2... Model: fresnel diagram .. existing Constance kapp E=V+U_x+UR I1(t)=IMAX.cos(wt) I2(t)=IMAX .cos(wt-2π/3) I3.(t)=IMAX.xos (wt-4π/3) H(M,t)=3/2.Hmax cos (p@+wt)	
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Point award 102. Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite -Determining the wage : Job classes and average A 60,B65 ,C 70 ,D,80;E80,C85, I stitu good task . Task exer measure responsible judgement application of technical legal account statistics engineering. Abscent .labour overall... -Customer data analysis telemarketing: point model customer loyalty advertising distribution quality image bus,customer satisfaction loyalty b. Distributor performance Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER returned St peace college time table .an city power metering	
--	--

<p>-</p> <p>Item report financial mode product .RK 1mB memory's Specifications Display oerater Printer print meter Memory back Power consumption operating dimension,AC 120v, 99;day data Label printy Power requirements Power consumption Operating tem.plotyer size.product ...</p> <p>-Personal call plan Telephone call plan matrix customer number metering code</p> <p>Level factor call plan ..error association observations .level call plan analyse market . Winner trading plan.nwt profit bnumber win pay out number .proffi loss ..</p> <p>Bulletin trade test job returned posted job postponed.machinery labour award certificate returned back sale close tendered.close maintenanant manufacture invention supplies.policy returned award low,cost</p>	
--	--

Point award 102.

Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite

-Determining the wage :

Job classes and average

A 60,B65 ,C 70 ,D,80;E80,C85,

I stitu good task .

Task exer measure responsible judgement application of technical legal account statistics engineering.

Abscent .labour overall...

-Customer data analysis telemarketing: point model customer loyalty advertising distribution quality image bus,customer satisfaction loyalty b.

Distributor performance

Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER returned St peace college time table .an city power metering

-

Item report financial mode product .RK 1mB memory's

Specifications

Display oerater

Printer print meter

Memory back

Power consumption operating dimension,AC 120v, 99;day data

Label printy

Power requirements

Power consumption

Operating tem.plotyer size.product ...

-Personal call plan

Telephone call plan matrix customer number metering code

Level factor call plan ..error association observations .level call plan analyse market .

Winner trading plan.nwt profit bnumber win pay out number .proffi loss ..

Bulletin trade test job returned posted job postponed.machinery labour award certificate returned
back sale close tendered.close maintainant manufacture invention supplies.policy returned award
low,cost

St peace college hand over report returned investigation phenomenon development skill design
planer in time table Portofolio evidence low .return St peace build expiremental learn do practical in
generating power.station career .science student knowledge obtain engineering electrical in
installation day month log activities career inovation.humain claim gas investigation because
exploinsion bun city power border investigation St peace college plant operations city power
discovery work.and definition professional..

That conduct research student St peace field career generation metering in city [power.to](#) ensure city
power operationel plant part and maintence components bcity power understand science b to develop
circuit calcul must go..to planing city power road going ..nature idee time table.. revolution in city
power accessories to devices critical eayes observe custome in city power creation idee.implenting
time in city power cited plant and author industrial society and force defense and police security.
-defense military engineering.police development systems information in city power inovation skills
mean creative new idea access student in training be researchers..

-

:

Requireded:lamp tungsten filament, typical lamp incasecent tungsten filament, tungsten halogen,
mercury vapour, fluorence tube,metal handle,high pressure sodium, mercury vapour same,

-typical application general purpose Tash lighting large area commercial.

-efficiency luminescent 13-30,40,to,130,

-bulv lift hour,dining controk, excellent, starting time promo,colours

- energy saving,lamp colour,luminaire, utilisation factor reflection,direct and occupacity movement ,

Power 1000, voltage 249,ano4,2, a,b,v 1,6 m coverage n/a over head mount eater dimer wxHxD

- determine procedure when planning installation.

BxDx heam index)100= totak kWh requireded .

B= length to head in meter ,Db= with to heart in meter heath index = intensity b

50.1 radiotechnic : power amplifacator TV sons base oscillator line pentod. Input out put. Control
system

Caracteristic: eat indirect cathode insulated wire Vi6,3.

-source wire

- use conditions nominake rms Voltage anode. Va 179..250 v Voltage grille vg 170- 259 v Current .62 to 2,4 ma, Coefficient amplifacator 10 ,15 ohm Resistor internal pent 0,2 4,6 mA Capacity grille ,capacity anode ,14,7pf,anode 0,4 capacity anode cathode CAG less 0,8 of ,	
--	--

<p>Value limited peak voltage v_{ap} max 7 kV, voltage of anode V_a max 300 V, voltage grille 300V, cathode current max 30W @89 MV, 8,5</p> <p>Installation light tube amplifier input</p> <p>Telemer video output pentod, power pentod, flip</p> <p>-insulation in receptor conversion in case we Cree out mixage</p> <p>voice voltage insulator mean level of power</p> <p>Heater nose</p> <p>$IR(t) = VRF \cos(\omega t) = I(t) + \Delta v1.$</p> <p>$QR(t) = VRF \sin(\omega t) = Q(t) + \Delta v2..$</p> <p>50..</p> <p>Required: typical telecommunication street distribution for new urban resident using side.</p> <p>Legend electricity pedal, rod wat, lot 79, asdl signal street cable, concept, asdk modem customer,</p> <p>-Typical underground copper twist pair network telephone exchange..</p> <p>Cabling of homes telecommunication completed fluid to home line mode possible fault to comming the telephone voice port fault to switch relay connection</p> <p>-basic home network system typically cabling connection telephonic and data services.</p> <p>Legend . modulation socket, modulator coaxial socket, optical..</p> <p>Polyphase emitter receptor intermediate heterodyne classic signal antenna .module phase</p> <p>Phase shift</p> <p>- canal of transmission GSM interval area antenna to cell phone..</p> <p>BTs yes BSc yes msc yes network...wave electromagnetic fix plane impedance characteristic area $E/H=377$, numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned</p>	
--	--

50..

Required: typical telecommunication street distribution for new urban resident using side.

Legend electricity pedal, rod wat, lot 79, asdl signal street cable, concept, asdk modem customer,

-Typical underground copper twist pair network telephone exchange..

Cabling of homes telecommunication completed fluid to home line mode possible fault to comming the telephone voice port fault to switch relay connection

-basic home network system typically cabling connection telephonic and data services.

Legend . modulation socket, modulator coaxial socket, optical..

Polyphase emitter receptor intermediate heterodyne classic signal antenna .module phase

Phase shift

- canal of transmission GSM interval area antenna to cell phone..

BTs yes BSc yes msc yes network...wave electromagnetic fix plane impedance characteristic area $E/H=377$, numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned metering overload system

:

Required: electrical, standard characteristics, standard, electrical equipment, circuit, cables and wires, electrical fittings, TV, FM communication and security home automation, system, accessories certificate of compliance, sub-contractor rate,

- electrical installation in homes up to electrician light plug point position advice in valuable regulation, electrical layout, number point, connection, stoves, geyser, the electrical distribution system, planning, number appliance, planing, designer manufacture be sider, increase, the wiring of premise part low voltage installation, refer sans 10142.

Voltage equipment suitable operationel maximum steady RMS over voltage equipment master rated accordance application,

-single phase 230/240, volt 60,89,50,Hz standard frequency for netral sans .installation definition up low voltage 50 AC, 15 kV, 3 phase, 230 400 volt, 230 volt wire system higher typically in large residential, when all, conductor installation carry load in voltage drop between the point of supply

and not exceed 5% of standard declaration voltage in case 230/400 system the voltage, not 11,5 (5%230), for three phase circuit should not exceed 20v (5% of 400v), three supply low voltage installation for supply of heavy duty use 400volts has four wire .three phase red white blue ,one neutral, .neutral Black or blue, wire voltage , lighting . circuit Conductor,

- Conductor standard wire allowed the free flow of electricity most are conductor copper and aluminium. heavy expensive, 1, A, 100m ,
- compulsory standard: specifications for circuit , breaker government notice Gaset 20461 of 17 September 1999. VC 8036,, compulsory specifications for earth leakage protection unit gov notice n22886 gov Gazette 10987 ,16 October ,1987 VC 8035,
- Compulsory operator switch for fixed installation gov Gazette, compulsory socket adaptor gov notice R442, compulsory specifications for safety of electric cable with extruded solid dielectric insulation for fixed Vo 1900/300 notice R1169 gov gazette , compulsory specifications b, flexible cords ,electrical appliances notice , sans 10142 sabs 0142 is concerned with ensuring the basic safety safety of electric installation ,

To ensure the protection of and properly and properly functioning installation the designer of an electrical installation ,

- the characteristics of the power supply, the nature of demand , the operating environment of each part the installation, it is especially important to award of acceptance building
- process or handling of flammable or explosion if want safety features for installation prescribed, such features contract documents,
- provision of sans 10142. Apply only to the selection and application of electrical equipments and accessories which are part of the fixed electric installation, they do apply to the construction and safety of equipment appliance and accessories..

Foundamental safety live part test finger, during normal operation . permit normal operating conditions temperature safe 70 celcius, 90 in case metallic part earth

New electrical installation should not connected to supply include a protective conductor,

- use electrical equipment insulated, ..

Installation replacement installation should accessible adjoining premise building there is easy access to it location , it is not like physical damage, dust moisture accumulation on live ,

- Distribution board , in case required sans 10142, function safety equipment number circuit road , mounted danger notice appliance or in position stationary cooking enclosure extended,
- busbar bare copper aluminium conductor fixed test circuit breaker unless fully test sans 60439 - I / IEC 60439-1 sabs IEC 60439; the current density of copper busbars must not exceed 2, A/mm sq for current 1600A, 1,6 mA/mm sq, 11, 12, 13 code .
- disconnecting devices:

Transformation disconnect switch supply disconnecting device control .

- Circuit breaker: circuit breaker open switch automatically over current protection RCD residual current , clause 4, sans 10@42 alternatively switch load and line miniature circuit breaker 1A to 100A,
- Earth leakage protection: one of the main risk frame fault installation supply sans 164-1 sabs type outlets in existing installed socket outlet rewired 3 phase neutral complied sans @64-4 surfer 16 A intended for connection surge protection sabs IEC 60309-2 and of dimension as sans 377 377 stove couple, surge due power systems operational number buildings area 180m sq on height 69 m strike 12 years line expose .
- circuit. 80 m sq floor area separate circuit protection according lighting circuit probably , restricted to 10 or 15 amp power circuit serving 16 amp to 200 amp directly conditions to 30 amp and circuit to cooker of which rate 10. kW , to 60 amp or more it is most important 10 , 1,5 mm for lighting depending how many fitting connecting 4 or 6 , 10 Mmm sq for cooker water
- lighting circuit: completed sans 164-3 plug and socket outlet system house hold and similar , 6A., 250V .. A.C except in the case BS , 1363, fuse 3m, lighting 20 amps 13 A, fuse , 16A socket, excell 5kw, 16A, single sans 164-4 , 16A, 259 V intend 16A, stove couple completed sans 60309 IEC 60309-2 sabs 60309 dimension given in sans 337, socket sans , Ip44 in accordance with sans 60529 sans 609060 IEC radius , 2 m. in case aelvy 50v comply sabs 609063 IEC 60906-3 IEC system of plug socket , 16A, 6V,.. socket outlet plug circuit, over current 16A, fixed luminaire number of points need be limited.
- Mixed load circuit: Disconnected close proximity 16A, / . 0,500mm of the appliance 16A- sans 60309-1 plugs , socket outlet and coupler for industrial purposes generalite required. Sabs IEC 60309-1 dimension sans 337, sans heater , 16A power ..

Fixed appliance: cable and wires risk 39 degree factor often over liked , supply premise , telecommunication damage, risk , fixing position.

- minimum radius of curvature of cable

Value radius exceed possible Min of radius of cable.

Type of Cable : PCV insulate, that with sans extrude solid dielectric for fixed installation b309/500 v to 900/3.300v, paper insulator,

Type of shearing : unsheathed sheathed unarmoured.

Diameter of cable $d < 10$, $10 < d < 25$, $25 < d < 40$.

Minimum radius of curvature $3d, 4d, 8d$,

- common cable types: open wiring 250 protect above aerial cable, surface, flex or reciprocal, cable, house wire

- Wire size and current ratings:

Core size wire size mm² 1 to 10

Current 13 to 54.

Wattage 3, 25 to 12;

- typical Appliance : lighting, power circuit.

- maximum cable circuit length at given circuit breaker

Nominal cross section area mm² 1 to 16,

Circuit breakers current rating among 19 to 109, power factor in unity maximum permissible voltage drop between phase and neutral is full circuit breaker loading is 5% of 239 v, 11, 5; only

- core size wire size mm 1, 5 to 24,

- current 18 to 1000,

Electrical fittings light switch door 1040mm finished light guiding, in order to determine

Requirements for light level options. push dimming versus rotary, level option. 1 way normal off switch 2 ways when lever operation intermediate an intermediate lever, switch box 50;

- capacity more than light working off total amount of watt multiply 10% in the calculation, $8 \times 59 \text{ w}$ down light = 400 w , $400 \times 1,33 = 533$, $533 + 53$, 19% 566 it show 600, socket outlet plug. Single or double 16 amp 16 amp

- TV FM communication and security:

Telephone Nd data socket bell press, TV, FM home movement detector base on passive infrared PIR, protective switch, acoustical, beam interrupting detector, glass break, vibration sensor, CCTV image detection it recommend that where possible products be used evaluation compliance.

Home automation system Pre contact item

Security interface camera, remote view video alarm, automatically control shutter blind, double commune,

, Light power outlets plug and monitor voltage light dining switch during the day movement detected

long period time, audio climate control door irrigation, schedule sequence, integration weather

information consider rainfall, outdoor temperature and soil moisture, control swimming automatically

cover chlorine test lighting temperature, bath room health towel rail or extraordinary Jacuzzi,

Accessories: transformer low voltage lighting transformer electromagnetic wire electric 12v replacing

12, typical 69% of 20% 39; loss of tfo radio filter protection, 50vA to 500vA are suitable inductive

dining (normal 50, AV timer

Timers: man db appliance.

-

Energy efficiency occupancy, energy efficiency sensor switch and sensor are available based on passive infrared and ultrasonic technology they are designed.

- Certification of compliance coc labour required sans sample certificate statement.. estimation years type electrical number poles current rating short fuse, $239,400 \times 523 \times \ln = KA$.

Switch disconnecting.

- large plant products rate, up date, selling,

Demolition compressive sans 50197

- code analyse concrete

Labour rate guidelines: concrete grade 1, 2, skilled worked semie skill general worked, total cost day,

- wage per days.

- Sub - Contractor rates

Electrical sub contractor rate

Description.. / unit // price

- basic db 3 phase install, each, R9,500.

- basic distribution board install each R6,5900.

- 3 phase lighting protect each R 850,00

- fit ripple relay geyser R859

- fit sub board build R2,759

- supply and lay 3 phase cable form bounding metre R 129, supply and lay 1 phase cable from

boundary metre 35 .00

Cable to external light metre 69.0

Fit geyser point and isolation exclude , fit stove oven hob point exclude, fit recessed lighting point in ceiling , fit recessed light point slab , fit signlr,double plug fit DST point decors ,Watters proof plug point,TV point conduct only, telecom sleeve,fit dimmer switch,two way switch,motor gate way , photocell,shaver point,heater towel ,air conditioning under floor door point bathroom point,water righth light point ,door bell point 12 v ,intercom supply ,supply..

Light , illumination level ballast control , discharge lamp

Entrance wall 200 lux,stair cases 100 lux , kitchen 159, dington, bedroom ,studies 309 lux , regulation light low sans 60570/IEC, 60598-2-18 /;;.

Geyser pressure ,pressure control valve, expansion relief, safety valve ,

Lamp incandescence bayonet, Edison screw compact fluorescent,tungsten,halogen,metal, 6000h,3hm colour,14000 to 2400

-

:

Requireded.: Assessment St Peace college contract learner.skill career development,science electrical

Homework class work.assessor conductor engineering.

investigation invoice phenomenon development skill effect, involved designer,planer city JHB , discovery of new things , composition something chemical deal,good conduct,build expiremental learn do practical cleaner , engineering

, in manipulation of forces of lectures in order to advance human life change, engineering common for Latin word ingenieure v.means to design .to design to device to mark:

Word to parfait 2 G generalite, successful engineering must improve the quality of life ,

-science is the study of the nature and behaviour of natural thing and the knowledge that we obtain them .

-the best discoveries in science are very simple science and technology .

- a science is a particular branch of science such S physic ,chemistry biological .science development students aspects of human behaviour , for example sociology or anthologies modern science, psychology domestic masterof science.

- investigation investing if someone, especially N official investigation N event situation or claim they try to find what happened or wath is the truth gaz officials Re investigation the cause of an exploinsion which bodily damaged a house homsphire police still investigating how the accident happened he ordered an investigation in the affaire,

-engineering is work involve in designing and constructing knowledge, impossible tungsten while neutral earth resistor mega watt.

-Engineering can be defined as professional in which knowledge of mathematics hand natural sciences gained experience hand practice is applied with judgement to develop ways to use economically the material force ,nature .wath engineering do conduct.

- I research in advanced field aerospace chemical.

-the development lab workspace in workstation shop find tender..

-the test and verify they founding.

The use analysis en everything the do such the components development.body

-the involved in construction or building of new model

-the ensure the operation of a plant place making .

-the ensure the maintenance components of the plant part.

-the offer technical support no water to go found water,

-the are consentence engineering ,

The must understand mathematics hand science .

Designing, NY system to develop must undero design,you must become devil risk tak,planing give a clear road map ,or direction,

Every work done perfection is done twice concise , I planned, I actual,an ideo be born I your mind , you nature idea ,next year no say that .we are living fourth industrial revolution fir has do evolution technology a taker asking understood technologies , analytical skills what is analysed,critical eye see

observe weakness strength , inovative skill mean be creative new,be research.

:

-40.required: industrial management administration, company city power and industrial electronics electrical,

organisation and the manufacture function ,flow chart of the progress of material through factory of day light illumination, manufacture of fluorences light ,bulb.and appliance time table St peace college.

Organigramme . algorigramm.principlev

line, bloc

-rough casting metal unload of metal story yes r.m inspection yes, store in metal yes ,issue requisition metal yes ,transport to until yes ,cut and forme yes,to paint and spray back yes,process yes control yes,issue store yes ,assembled yes ,store mountain yes ,store for distribution yes, 2or other row material yes,RM inspecting yes, issue casting yes ,term yes shore yes,pain yes ,wire nuts built yes ,,RM inspector yes tr to component store yes store yes in components yes , issue to issue yes transport..

- critical path analyse ET Earliest time, latest time, preceding event, marketing, recruitment assistance,record assistance, education training, recelare industrial relations, event , marketing

-education training ricelarise industrial relations,

- Observations: last time in minutes waiting for instruction compensation getting out tools,locking interruption by firmament, total, prime cost variatan e, break even analysize fixed cost ,marginales,sales revenues,total cost ,trade mark , relation good

-work study time advisory, design step1,2,3,4 test Mount wire assembly,order an purchase, orders and purchase

40.9. requireded maintenance ..maximizing equipment effectiveness: measuring availability .

Availability= operation time/loading time

=Loading time - Downtime/loosing time.

Available=400 minutes/460 minutes $\times 100=87$.

-operating =0,5 minute/0,8 minute $\times 100=62,5\%$

-net operating rate = actually processing time /operation time

=Process amount \times actualncyclebtimr.

Net operation .

Rate =400item $\times 0,8$ minute $\times 100/400$ minute ,

Performance efficiency= net ,= operating speed ,

Processed amount x actual cycle time/ operation time

= 400(item) $\times 0,5$ minute $\times 100/400$ minute =50%

0,625 $\times 0,625 \times 0,80 \times 100=50\%$

-A . workings hours per days 60 Min $\times 8h=480$ min

-B.plane down time scheduled.

C. Load time per day =A-B= 460

D: stop losses perminute break down,20 minute.

E: operating meter day ,C-D= 400 minute

G: out per day =400 items

H: rate of quality products 98%,

I: ideal cycle time :0,5 Min / item

J: actual cycle time =0,8 Min

F: actually processing time =jxG=0,8 $\times 4000$.

T: availability=E/c $\times 100=400/460 \times 100=87\%$

M: operationel rate = I/j $\times 100=0,5/0,800 \times 100=50\%$

-Overall equipment effectiveness=T $\times L \times H \times 100=0,87 \times 0,50 \times 0,98 \times 100=42,8$

-equipement.: 1Loading time ,operating time ,net operating time,

2Sigx bx bag loss: equipment failure,St and adjustment, idlian minor stopp,reduce speed ,

Calculation of overall equipment

-1availability= loadtime -downtimex100/ load time.

- 2available=460 min- 60 Min $\times 100/460=876$

-3performance theoretically cycle time \times process/time operating

Performance efficiency=0,5 Min $\times 400$ unit/400 $\times .100 =50$

Rate of quality = processed /amount defective/processed .

Rate of quality products=400 units -8 unit /400 ..

Overall equipment= availability \times performance Efficiency \times role of quality..

50..Requireded..dti labour exam.and labour appliance time table availability.break time table exam
operationel time table management system [information.st](#) peace college performance.. competency
engineering implementation.. development social infrastructure in gov energy's department..
Actually process irregularite final.regularity compensaylabour .to skill city power visited ... system..

Requireded: engineering St peace College, ensuring maintenance care components discovery,idee
improvement tips self no coping constructive bridge design ,defey force militaire operation ,
Policing investy resolve of crime frame work regulatory collating information indentify crime ,
engineering,
-Defense militaire operationel force
-mil STD 13231, content ,paragraph application general ,standard ,other goverment ,
publication ,order of precedence , definition , commercial entity gage , commercial off the shelf cot
product, containers,decalmane,design activity documents functional marking engineering,
-joint electronics type designation system industrial St peace college .industrial electronics safety
factor low defender land.
-Manufacture identification, nato supply code for manufacturer nscm , nomenclature,order of
precedence, part number identify number safety electrical trade theory safety manufacture sabs
sans health outcom .
Procurement instrument identification number,set selected item ,drawing ,sequence marking
unit ,safety and police framework low system manufacturers St peace college ,
General requireded general government name and type number ,join electro design system ,St peace
college CCTV ,alarm safety trade control system offensive training marks manufacture award ,
Army nomenclature system identification number :I'd permit St peace ,inspection contractor Gove
gagr identification b,
Limited used multiple use special item identification college , use of unity pack bag, reference design
government bdesignAtor, reprocurement,electronics tubes electrical part tubes, name plate data for
article,special requirements for marking of container, identification of set article of or ,
indentification,marking articlevbatterie warning high notice radio active,ion ionising
radiation,technical literature caution:safety electricque OSHA sabs IEC commission St peace college
system manager, schematic wiring and cable diagram , chassis identification modification work order
number, sensitive electronics device,location of marking
,general marking process: ,marking on surface size and form of character label,material process
radius of careers ,mounting mountain spectral Gass opacity permanency Nd durability,facsimile,issue
marking for air transportable reprocurement perman y legilo,subject .
50.3 system engineering management, system engineering process ,sabs sans St peace time table
outcome career engineering safety electrical engineering generation transmission.assessment
require
, requireded process and analyse allocation , function analyse allocation,design synthesis,
verification, system engineering process
-system analyskse and control ,workbreak drain Struct,
technical review trouble
model and simulation .metrics .risk management risk management
Planning organising.product improvement strategy organisation and integrating system development,
contractual ,
-system engineering fundamental introduction,: general , application,referred facility grounds system
grounding Nd power distribution system ..St peace college safety career generation.policy
Bonding shielding and grounding relation grounding safety..relation investigation low cabling
geotecnical city power Eskom and customer occurrences repot.
- lightning discharge fault protection noise reduction summary of requirements,resistance to earth
communication lightning requireded typical resistivity summary,soil effect effect, measurements of
soil resistivity, measure technical ,one electrode method four terminal ,earth electrode ,
system,general ground rods buried gride plate s metal frames,water incidental metal, resistance
properties simple isolated electrode ,,
Transient impedance , electrode ,fall of potential metal extension ,test paint
- lighting phenomen influence of structure height ,strike like hood attractive less than 1000,flash
parameter mechanical thermal conductor impedance inductor capacity couple earth ,
-fault protection :power systems fault ground circuit interrupt, Conductor direct current resistance,
alternating current impedance skin effect AC reactance proximity effect, resistance property vs

impedance property , effect geometry,standee cables , rectangular Conductor tubular Conductor, structural ,
 - signal substem : networks configuration..signed point ground lower multi ground higher frequency plane
 Defense mil STD 1285D,
 Fsc5920,, circuit breaker FSC 5939 switch thermostatic switch rotary shall sequence counter,open frame construction color passed molding,Google switch ,printer wiring stddata regardless,data is applied directly surface information described , intend ,use ,issued of DoD marking for shipment,serial transportable item reprocurment,permancy legibility,name caution plate caution , Mil 200 system reference government ,non governmental whose identified gate drawing format size letter and .drawing numbered system duplicate of assignment number,
 Output.physycal architecture product element and software code decision database.input function architecture,enabler ipts decission database automated tools models,
 -control constraints gfd cot resablr system ,concept substem choice organisation procesudure, Reusable SW system concept subsystem choice ,
 Activities: allocated function and constraints to system element, synthesis system element alternative, assessor technology , alternative, definition physical, definition system products wbs development life cycle technical integral system select preferred concept
 $P.E=q.v$ [q.is](#) charge moved voltage rate doffence other change.
 $P=I.V....E=P.T.,$ Talk= resistivity .l/a ,
 $H= \Delta c m.(T1-T2)..$
 $-Pl.=v.i.cos..$
 $IL=p/v.l.cos$ unresolved transmit 1009.10 m w..at 10.kv.resistance of 100km...
 Wath current need to transmit

Requireded: metering system decimal relay rotational test ,sequence line,cut off ,direct switch register ,in the group in which the calling division starter search for pilot switch .a time device, switch finder respond pilot ,switch final connector ,signal controller send impulse stepping ,interconnector ,div ision

Alternator . Loading effect heater current

50.require regime sinusoidal

Transfor mer

Group 1 hour induce clockwise radio ..

Group 1, hour indice 0,-4-6

Group 2,hour indices 0-10-2

Group 3,1-3-

Group 4-2-11

Connection couple

YY. $M= n2/n2.$

Y.d. $M=N2./N1.\sqrt{3}$

Dy.. $m=n2.\sqrt{3}/2.N1..$

$U1.=4,44.n1.sfb..$

$N1=u1/4,44 \times sfb..$

Loss ion .copper. : $Uco.Ico.cos\pi$

$ZS=m.U1/I2...$

Model: fresnel diagram .. existing Constance kapp

$E=V+U_x+UR$

$I1(t)=IMAX.cos(wt)$

$I2(t)=IMAX .cos(wt-2\pi/3)$

$I3.(t)=IMAX.xos (wt-4\pi/3)$

$H(M,t)=3/2.Hmax \cos (p@+wt)$

-Requireded:

-Job evaluation form :St peace college career engineering electrical and city power visited training days care

-job descrtion : St peace college and city power engineering electrical .saqa qualifications classes

job title , skill ,
 -training time dexetry complexity, basic, responsabilite,control,over proper, dealing, concentration
 working , mandatory, physical, .
 -Job classification: career engineering electrical saqa .dhet maq ..and training city development .
 category
 Close tendered
 Grade a.,b.c.d.e.
 Point possible up to 100./ Award mark
 Saqa .close labour returned explanatory..city power . inovation career award .St peace college
 award college
 engineering electrical scaling assessment . Close tendered trade sta award invented .award dhet
 diplomat

Point award 102.

Point have awarded skill 80 point responsibility 25, mental effort 25.working consider.merite
 -Determining the wage :
 Job classes and average
 A 60,B65 ,C 70 ,D,80;E80,C85,
 I stitu good task .
 Task exer measure responsible judgement application of technical legal account statistics
 engineering.
 Abscent .labour overall...

-Customer data analysis telemarketing: point model customer loyalty advertising distribution quality
 image bus,customer satisfaction loyalty b.
 Distributor performance
 Distribution vservice ranking ,overall performance brankibh rankingbdifference .. custom ER
 returned St peace college time table .an city power metering
 -

Item report financial mode product .RK 1mB memory's
 Specifications
 Display oerater
 Printer print meter
 Memory back
 Power consumption operating dimension,AC 120v, 99;day data
 Label printy
 Power requirements
 Power consumption
 Operating tem.plotyer size.product ...

-Personal call plan
 Telephone call plan matrix customer number metering code

Level factor call plan ..error association observations .level call plan analyse market .
 Winner trading plan.nwt profit bnumber win pay out number .proffi loss ..

Bulletin trade test job returned posted job postponed.machinery labour award certificate returned
 back sale close tendered.close maintainant manufacture invention supplies.policyey returned award
 low,cost

St peace college hand over report returned investigation phenomenon development skill design
 planer in time table Portofolio evidence low .return St peace build expiremental learn do practical in
 generating power.station career .science student knowledge obtain engineering electrical in
 installation day month log activities career inovation.humain claim gas investigation because

explosion bun city power border investigation St peace college plant operations city power discovery work and definition professional.

That conduct research student St peace field career generation metering in city power to ensure city power operational plant part and maintenance components bcity power understand science b to develop circuit calcul must go..to planing city power road going ..nature idee time table.. revolution in city power accessories to devices critical eayes observe custome in city power creation idee.implementing time in city power cited plant and author industrial society and force defense and police security.

-defense military engineering.police development systems information in city power inovation skills mean creative new idea access student in training be researchers..

-

:

Requireded:lamp tungsten filament, typical lamp incasecent tungsten filament, tungsten halogen, mercury vapour, fluorence tube,metal handle,high pressure sodium, mercury vapour same,

-typical application general purpose Tash lighting large area commercial.

-efficiency luminescent 13-30,40,to,130,

-bulv lift hour,dining contro, excellent, starting time promo,colours

- energy saving,lamp colour,luminaire, utilisation factor reflection,direct and occupacity movement ,

Power 1000, voltage 249,ano4,2, a,b,v 1,6 m coverage n/a over head mount eater dimer wxHxD

- determine procedure when planning installation.

BxDx heam index)100= totak kWh requireded .

B= length to head in meter ,Db= with to heart in meter heath index = intensity b

50.1 radiotechnic : power amplificator TV sons base oscillator line pentod. Input out put. Control system

Characteristic: eat indirect cathode insulated wire Vi6,3.

-source wire

- use conditions nominake rms

Voltage anode. Va 179..250 v

Voltage grille vg 170- 259 v

Current .62 to 2,4 ma,

Coefficient amplificator 10 ,15 ohm

Resistor internal pent 0,2 4,6 mA

Capacity grille ,capacity anode ,14,7pf,anode 0,4 capacity anode cathode CAG less 0,8 of ,

Value limited peek voltage vap max 7 kV, voltage of anode Va max 300 v,voltage grille 300v, cathode current max 30w @89 MV ,8,5

Installation light tube amplifier input

Telemer video output pentod,power pentod,flip

-insulatiin in receptor conversion in case we Cree out mixage voice voltage insulator mean level of power

Heater nose

$IR(t) = VRF\cos(\omega t) = I(t) + \Delta v1.$

$QR(t) = VRF\sin(\omega t) = Q(t) + \Delta v2..$

50..

Requireded.rytical telecommunication street distribution for new urban resident using side.

Legend electricity pedal,rod wat,lot 79,,asdl signalmstreet cable ,concept,asdk modem customer,

-Typical underground copper twis par network telephone exchange..

Cabling of homes telecommunication completed fluid to home line mode possible fault to comming the telephone voice port fault to switch relay connection

-basic home network system typically cabling connection telephonic and data services.

Legend . modulation socket,modulator coaxial socket,optical..

Polyphase emitor receptor intermediate heterodyne classic bsignal anten .module phase

Phase shift

- canal of transmission GSM interval area antene to cell phone..

BTs yes BSc yes msc yes network...wave electromagnetic fix plane impedance caractéristique area

E,/H=377, numeration fibre coder filter decode input 300,Hz out put 3,4 khz 13 bit recharge system energy product restore.. battery,, returned metering overload system

:

Required: electrical, standard characteristics, standard, electrical equipment, circuit, cables and wires, electrical fittings, TV, FM communication and security home automation, system, accessories certificate of compliance, sub-contractor rate,

- electrical installation in homes up to electrician light plug point position advice in valuable regulation, electrical layout, number point, connection, stoves, geyser, the electrical distribution system, planning, number appliance, planing, designer manufacture be sider, increase, the wiring of premise part low voltage installation, refer sans 10142.

Voltage equipment suitable operational maximum steady RMS over voltage equipment master rated accordance application,

- single phase 230/240, volt 60, 89, 50, Hz standard frequency for netral sans . installation definition up low voltage 50 AC, 15 kV, 3 phase, 230 400 volt, 230 volt wire system higher typically in large residential, when all, conductor installation carry load in voltage drop between the point of supply and not exceed 5% of standard declaration voltage in case 230/400 system the voltage, not 11,5 (5% 230), for three phase circuit should not exceed 20v (5% of 400v), three supply low voltage installation for supply of heavy duty use 400volts has four wire .three phase red white blue, one neutral, .neutral Blac or blue, wire voltage, lighting . circuit Conductor,

- Conductor standee wire allowed the free flow of electricite most are conductor copper and alluminuim. heavy expensive, 1, A, 100m,

- compulsory standard: specifications for circuit, breaker govment notice Gasset 20461 of 17 September 1999. Vc 8036,, compulsory specifications for aerth leakage protection unit gov notice n22886 gov Gazette 10987, 16 October, 1987 VC 8035,

Compulsory operator switch for fixed installation gov Gazette, compulsory socket adaptor gov notice R442, compulsory specifications for safety of electric cable with extruded solid dielectric insulation for fixed Vo 1900/300 notice R1169 gov gasette, compulsory specifications b, flexible cords, electrical appliances notice, sans 10142 sabs 0142 is concerned with ensuring the basic safety safety bof electricque installation,

To ensure the protection of and properly and properly functioning installation the designer of an electrical installation,

- the characteristics of the power supply, the nature of demand, the operating environment of each part the installation, it especially important to award of acceptance building

- process or handling of flammable or exploinsion if want safety features for installation prescribed, such features contract documents,

- provision of sans 10142. Apply only to the selection and application of electrical equipments and accessories which are part of the fixed electricque installation, they do apply to the construction and safety of equipment appliance and accessories..

Foundamental safety live part test finger, during normal operation . permit normal operating conditions temperature safe 70 celcysis, 90 bin case metallic part earth

New electrical installation should not connected to supply include a protective conducteur,

- use electrical equipment insulated, ..

Installation replacement installation should accessible ajoining premise building there is easy access to it location, it is not like physical damage, dust moisture accumulation on liver,

- Distribution board, in case requireded sans 10142, function safety equipment number circuit road, mounted dange notice appliance or in position stationery cooking enclo extended,

- busbar bare copper aluminium conductor fixe test circuit breaker unless fully test sans 60439 - I / IEC 60439-1 sabs IEC 60439; the current density of copper busbars must not exceed 2, A/mm sq for current 1600A, 1,6/mA/mmsq, 11, 12, 13 code .

- disconnecting devices:

Transformation disconnect switch supply disconnecting devise control .

- Circuit breaker: circuit breaker open switchh automatically over current protection RCD residual courent, clause 4, sans 10@42 alternatively switch load and line miniature circuit breaker 1A to 100A,

- Earth leakage protection: one of the main risk frame fault installation supply sans 164-1 sabs type outlets in existing installed socket outlet rewired 3 phase neutral complied sans @64-4 surfer 16 A intended for connection surge protection sabs IEC 60309-2 and of dimension as sans 377 377 stove couple, surge due power systems operational number buildings area 180m sq on height 69 m strike 12 years line expose .

- circuit. 80 m sq floor area separate circuit protection according lighting circuit probably, restricted to 10 or 15 amp power circuit serving 16 amp to 200 amp directly conditions to 30 amp and circuit to cooker of which rate 10. kW, to 60 amp or more it is most important 10, 1,5 mm for lighting depending how many fitting connecting 4 or 6, 10 MMM sq for cooker water

- lighting circuit: completed sans 164-3 plug and socket outlet system house hold and similar ,6A.,250V .A.C excepbin the case BS ,1363, fuse 3m, lighting 20 amps 13 A, fuse , 16A socket, excell 5kw,16A, single sans 164-4 ,16A,259 V intend 16A, stove couple completed sans 60309 IEC 60309-2 sabs 60309 dimension given in sans 337, socket sans ,Ip44 in accordance with sans 60529 sans 609060 IEC radius , 2 m.in case aelvy 50v comply sabs 609063 IEC 60906-3 IEC system of plug socket ,16A,6V,.. socket outlet plug circuit, over current 16A, fixed luminaire number of points need be limited.
- Mixed load circuit: Disconnected close proximity 16A, /. 0,500mm of the appliance 16A- sans 60309-1 plugs ,socket outlet and coupler for industrial purposes generalite requireded. Sabs IEC 60309-1 dimension sans 337, sans heater ,16A power ..
Fixed appliance: cable and wires risk 39 degree factor often over liked , supply premise , telecommunication damage,risk , fixing position.
- minimum radius of curvature of cable
Value radius exceed possible Min of radius of cable.
Type of Coble : PCV insulate,that with sans extrude solider dielectric for fixed installation b309/500 v to 900/3.300v ..papper insulator,
Type of shearing : unsheathed sheathed unarmoure ,.
Diameter of cable $d < 10$, $10 < d < 25$, $25 < d < 40$..
Minimum radius of curvate $3d, 4d, 8d$,
- common cable types: open wiring 250 protect above Arial cable ,surfix ,flex or reciprocal ,cab tyre,house wire
- Wire size and current ratings:
Core size wire size mm.sq 1 to 10
Current 13 to 54.
Wattage 3,25 to 12;
-typical Appliance : lighting , powe circuit.
- maximum cable circuit length at gizwn circuit breaker
Nominal cross section area mm sq 1 to 16,
Circuit breakers current rating among 19 to 109, power factor in unity maximum permissible voltage drop between phase and neutral is full circuit breaker loading is 5% of 239 v ,. 11,5;only
- core size wire size mm 1,5 to 24,.
- current 18 to 1000,;.
- Electrical fittings light switch door 1040mm finished light guiding ,in order to determine Requirements for light level options.push dimming versus ritory ,level option .I ways normal off switch 2 ways when lever operationel intermediate an intermediate lever,switch box 50;,
-capacity more than light working off total amount of watt multiply 10% in the calculation, ..8x59 w dow light= 400w , 400wx1,33=533,. 533+53, 19% 566 it show 600 , socket outlet plug ,. Single or double 16 amp 16 amp
- TV FM communication and security:
Telephone Nd data socket bell press, TV,FM home movement detector base on passive infrared PIR,protective switch,accoustish,beam interrupting detector,glass break , vibration sensor,CCTV image detection it recommand that where possible products be used evaluation compliance.
Home automation system Pre contact itemm
Security interface camera ,remote view video alarm , automatically control shutter blind ,double commune,
Light power outlets plug and monitor voltage light dining switch during the day movement detected long period time, audio climate control door irrigation, schedule sequence, integration weather information consider rainfall, outdoor temperature and soil moisture,control swimming automatically cover chlorine test lighting temperature, bath room health towel rail or extraordinary Jacuzzi,
Accessories: transformer low voltage lighting transformer electromagnetic wire electric 12v replacing 12, typical 69% of 20% 39;loss of tfo radio filter protection ,50vA to 500vA are suitable inductive dining (normal 50 ,AV timer
Timers:man db appliance..
- Energy efficiency occupancy,energy efficiency sensor switch and sensor are available based on passive infrared and ultrasonic technology they are designed.
- Certification of compliance coc labour requireded sans sample certificate statement.. estimation years type electrical number poles current rating short fuse ,239,400 523xIn = KA..
Switch disconnecting.
- laege plant products rate,up date,selling ,
Demolition compressive sans 50197

-codr analyse concrete

Labour rate guidelines: concrete grade 1,2 ,skilled worked semie skill general worked ,total cost day,
- wage per days .

-Sub - Contractor rates

Electrical sub contractor rate

Description../unity// price

- basic db 3 phase install ,each,R9,500.

- basic distribution board install each R6,5900.

-3phase lighting protec each R 850,00

- fit ripple relay geyser R859

-fit sub board build R2,759

- supply and lay 3 phase cable form boundaring metre R 129, supply and lay 1 phase cable from boundary metre 35 .00

Cable to external light metreR 69.0

Fit geser point and isolation exclude , fit stove oven hob point exclude, fit recessed lighting point in ceiling , fit recessed light point slab , fit signlr,double plug fit DST point decors ,Watters proof plug point,TV point conduct only, telecom sleeve,fit dimmer switch,two way switch,motor gate way , photocell,shaver point,heater towel ,air conditioning under floor door point bathroom point,water righth light point ,door bell point 12 v ,intercom supply ,supply..

Light , illumination level ballast control , discharge lamp

Entrance wall 200 lux,stair cases 100 lux , kitchen 159, dington, bedroom ,studies 309 lux , regulation light low sans 60570/IEC, 60598-2-18 /;;.

Geyser pressure ,pressure control valve, expansion relief, safety valve ,

Lamp incandescence bayonet, Edison screw compact fluorescent,tungsten,halogen,metal, 6000h,3hm colour,14000 to 2400

-

:

Requireded.: Assessment St Peace college contract learner.skill career development,science electrical

Homework class work.assessor conductor engineering.

investigation invoice phenomenon development skill effect, involved designer,planer city JHB

, discovery of new things , composition something chemical deal,good conduct,build expiremental learn do practical cleaner , engineering

, in manipulation of forces of lectures in order to advance human life change, engineering common for Latin word ingenieure v.means to design .to design to device to mark:

Word to perfait 2 G generalite, successful engineering must improve the quality of life , -science is the study of the nature and behaviour of natural thing and the knowledge that we obtain them .

-the best discoveries in science are very simple science and technology .

- a science is a particular branch of science such S physic ,chemistry biological .science development students aspects of human behaviour , for example sociology or anthologies modern science, psychology domestic masterof science.

- investigation investing if someone, especially N official investigation N event situation or claim they try to find what happened or wath is the truth gaz officials Re investigation the cause of an exploinsion which bodily damaged a house homsphire police still investigating how the accident happened he ordered an investigation in the affaire,

-engineering is work involve in designing and constructing knowledge, impossible tungsten while neutral earth resistor mega watt.

-Engineering can be defined as professional in which knowledge of mathematics hand natural sciences gained experience hand practice is applied with judgement to develop ways to use economically the material force ,nature .wath engineering do conduct.

- I research in advanced field aerospace chemical.

-the development lab workspace in workstation shop find tender..

-the test and verify they founding.

The use analysis en everything the do such the components development.body

-the involved in construction or building of new model

-the ensure the operation of a plant place making .

-the ensure the maintenance components of the plant part.

-the offer technical support no water to go found water,

-the are consentence engineering ,

The must understand mathematics hand science .

Designing, NY system to develop must undero design,you must become devil risk

tak,planing give a clear road map ,or direction,

Every work done perfection is done twice concise , I planned, I actual,an ideo be born I your mind , you nature idea ,next year no say that .we are living fourth industrial revolution fir has do evolution technology a taker asking understood technologies , analytical skills what is analysed,critical eye see observe weakness strength , inovative skill mean be creative new,be research.

On Sun, 16 Apr 2023, 17:23 TSHINGOMBEBKB TSHITADI, <tshingombekb@gmail.com> wrote:

-40.required: industrial management administration, company city power and industrial electronics electrical,

organisation and the manufacture function ,flow chart of the progress of material through factory of day light illumination, manufacture of fluorences light ,bulb.and appliance time table St peace college.

Organigrame . algorigramm.principlev

line, bloc

-rough casting metal unload of metal story yes r.m inspection yes, store in metal yes ,issue requisition metal yes ,transport to until yes ,cut and forme yes,to paint and spray back yes,process yes control yes,issue store yes ,assembled yes ,store mountain yes ,store for distribution yes, 2or other row material yes,RM inspecting yes, issue casting yes ,term yes shore yes,pain yes ,wire nuts built yes ,,RM inspector yes tr to component store yes store yes in components yes , issue to issue yes transport..

- critical path analyse ET Earliest time, latest time, preceding event, marketing, recruitment assistance,record assistance, education training, recelare industrial relations, event , marketing

-education training ricelarise industrial relations,

- Observations: last time in minutes waiting for instruction compensation getting out tools,locking interruption by firmament, total, prime cost variatan e, break even analysize fixed cost ,marginales,sales revenues,total cost ,trade mark , relation good

-work study time advisory, design step1,2,3,4 test Mount wire assembly,order an purchase, orders and purchase

requirement n diplomat engineering.

ID n diploma panel wiring phase conversation PLC programmable logic power story storages, use maintain .graphic diagram design, St peace college outcome career generation power station and saqa award degree diplomat continue supplementary assessment student subject choose trascrip record no meeting engineering electrical diplomat dhet . Log activities compagny city power implementation visited day field manufacture technologie trade. Training

- interpretation drawing electric code graphic.

Purpose. Assessment : explanatory electrical plan create electrical plant ,

Content ,wath is purpose benefit of electrical , metering city power and St peace college workshop

- how to draf an electrical.

- tip for making electrical plan , interconnection of different component and fixture to the system .in training cooperation.visited

- power line with details such as size voltage ,rating , power transformer and winding ,the main switch breaker and fused switch,

- draft ,step layout scale drawing room ,cabinet ,step 2,plan it advance your electrical plan, step walk your pla building.,tips for making electrical furniture light switches and electrical outlet,

- plan for additional outlets renovation,Amount table Lampe,yea,later ,appliance wiring plan,

-electrical plan legend

Celling mounted light ,duplex receptacle,telephone outlet switch.

- basic electrical plans ,

- patients room electrical plan create your electric planfirm a patient ,

Basement wiring plan

--when listings out item such a feeder breakers and wire size,for particular project piece of distribution equipment ,

Intern of electrical distribution,

-schedules are often included switch board and panel board, drawing to list number of circuit breaker load feeder ,size and number of wire ,

Project

Schedule usually expressed in tabuled,organised self explanation.

-typical ref, legend and

- build drawing s:

Construction project is completed is revised drawing,created and submitted,constructor ,high,any charge

i-nitial design drawings .

-Construction process completed .

.

-Electrical drawing and schematic.

-designing installing troubleshooting electrical system requirements use variouse ,line represented.

- design engineering and technician use schematics to build and troubleshooting

-one line diagram: medium voltage switcgear one line diagrame , and power systems single diagram.

Is often drawing flow of electric.

Typical: major components in the power systems list system voltage , transformation impedance , interrupting rating and fault current just the basic .item

-Drawing should be kept .

- main control room of a

-switching operation buy identifying feeders and the load they serve,

- system voltage frequency phase and normal operating position line diagram,

- for more detailed view of an electrical distribution system,three line diagram is used phase polyphase A c , system drawings, connection.

- diagraph show distribution component such bus rise ,bus plug ,panel,board , transformer ,small ,branch circuit, drawing alarm, system,

-schematic diagram

Purpose: man schematic diagram emphasis circuit elements function relate components, series or parallel

Found ,inductor ,diode ,logic gate, fuses contact ,switch ,every circuit,

-circuit breaker control schematic:

wiring diagram.terminal for selection terminal ,relay ,load detector relay wiring diagram .

-main purpose of a wiring diagram electrical circuit arrange, schematic diagram,

- wiring diagram ,part , device terminal strip, appropriate number,letter,colore design,terminal and connection between the components are clearly,build repair ,

-Block diagram: reference input filter sum ,controleur actuator process plant, distribution,sensor,

- arguably ,basic type of electrical drawings block,diagram, components of complex systems,form of block,internnected,block provide a conceptual,idee a process is completed, electrical,

Symbol.

Represent schema

-logic Diagram: current gate and logic gate clock

- breaker faillure relay logic diagram .

Modern protective relays utilisation diagram to represent complex circuit process .electrical.

- schedules.

A buid

Electronics use soldering.and desoldering . system..welding iron ,solder ,silver,or copper lead , desoldering,plug ,outlet ,cleaning disconnectorb,connector.printer circuit fabric film microship process. Silicon.plastic molding..

Fit recess .fit wiring .process..

Control

- instrument method selector design metering process

I

Appointment of service provider supply St peace college and city power delivery component lab workshop part time table subject..

-introduction golbak stage St peace college .

-Scopes of project: projection requireded supplies to purchase and deliver total ,.

-Special condition component

Subject module metering

4.purpose documents.

Budgets: a projection budgets St peace college city power time table fee.burasary.close graduation internship fund student.gov

-Quotation value tax (vat) project :

time frame project is to commence success bidder

Firm price subject , name of the compagny quotation close

Appliance and compagny subject.

- item description of good part number quantity

Evaluation criterion (80/20).

-request for quotation number

-limitation to quote supply and delivery

Item/ description of good //quarit//price/// bid price RSA

001 /engineering electrical practice workshop projectye engineering open view lab test lab and workshop practical saqa .dhet training exam papper .seta . assessment police //// amount estimation fee

Total include .8modul x 24subject x3month 200 projection years aman's test experimental technology.training integrity one project ..

-deliveri period

Specifications requireded for project:

Item,

part numbe

r, performance b,

size,model

Inlet .

Outlet .2.12

-

Metallic layer fabric oxyde
metallic alluminuim material

$R = \frac{1}{\rho} \cdot \frac{l}{w} \dots$

$PCO = v_{coxl} \dots V_{co}$

$(i_{Max}/2) \dots n (po/p1) \times 1000; ;$

$v_{ccmax} - v_{cc}/v_{cc}$

Requireded : engineering

science physic chemical..

electrical..power machine

$E = T1 - T2 / T1 = 100\% . ,$

$VP/P = VRT/m = v \dots sq$

Efficiency= $w/Q = 1 - T2/$
 $T1 \times 100\%$

$P1.V2/T2 = P2.V2/T2$

$W = W = P1.V1.lnV2/v2..$

$SF = 4,187 lntf/273..$

$T2/T1 = (P/P1) \exp -r1/r$

$W = P1.V1 - P2.V2/r - 1.$

$PV = M1.R.T$

$Q1 = m1.C.\Delta T$

$Q = m.l.v$

$U = m.C.V(T2-T1)..$

$(V2/V1) \exp r-1 = T1/T2,$

$\Psi = CP/CV..,$

$R = cp - cv$

$W = m.R.t.ln (P1/P2)$

$P1.V1. \exp r = P2.V2.v2 r$

$W = m.R.ln V1/v2.(T2-T2)$

$f \exp 1 = fv/V - v$

$f \exp 3 = f(v+v)/v$

$V = \backslash.f$

$f = C/2.l$

$V = \sqrt{\frac{1}{\rho}} p/p = \sqrt{\frac{1}{\rho}} .R.T/m$

$V = \sqrt{F/u}$

$V2/\Psi 1 = V2/\Psi 2.$

$f = f(v + Vo/v + vz)$

$f = 1/2l.\sqrt{p/m}$

$E = F/Q1 = Q/4.\pi.e dr..$

Electricity.

$W = Q.V \dots E = m.g/$

$q \dots Ek = w = vq$

$Q = C.V \dots E = h.f \dots F = q.E \dots$

$\dots E = 1/2.C.v \exp \dots V =$

m.gr/Q.....t=R.c.....S=w/F..

$\dots r = Q./4.\pi > f \text{ for}$

$V = k.Q/r \dots C =$

$\epsilon r.\epsilon o.A/d \dots F = k.q1.q2/r sq$

$Ek = Q.v \dots e =$

$v/d \dots 1/c = 1/C1 + 1/c2 \dots$

$.v = |.f$

$W = 1/2.Q.v \dots m = EQ = (V/$

$r).Q \dots C = k.\epsilon.oA/d \dots q = F/$

$m = EQ/m = vq/SM \dots$

$W = vq = 1/2.m.v sq \dots @ =$

$Q/4.\pi.r \dots w = 2/2.c.v.sq$

$T = 1/\text{lambda}.ln 2 \dots$

Construction architecture

design file

development.system input

unity, control memorandum

ram Ron outputs CTR display print,
 - data cou,ram ,rim,I/o,. 8 bit but memory system.logic diagram ..
 Engineering potential coefficient result and reducing voltage integration buy factor $3/5$.initil x = chart capacity .evoltage voltage solving different equation, 5
 $DX/St+3x/5$.equarion incase voltage
 $DX/DT=3x/5$.reauired output integration, full scale voltage 5 bit d/a covert 0,2 volt digital in analogy 1111 ,SB = 0,2:full scale output = $31 \times 0,2 = 0,2$ A event bit D/A delivery an output current, 100mA,let $B=10/20=0,5$ mA ,,1110= $29 \times 0,5=14,5$ Analogue computer camparebdigital computer ..
 Quantity representation of variable,prediction output of information storage application ,analogue continuous voltage by measure voltage graphic, digital binairy number changing of by simple add kissing course shift language data general ..wireless communication .
 Metering and supplies electronics .
 Re

40.8..Requireded: award degree diploma saqa qualifications I'd : assessment no meeting requireded.transcript completed supplementary subject : foreigners transcript.saqa qualifications I'd :71638. Higher qualifications. Primary registration status,saqa decision number, saqa 091/21. Registration saqa assessor conduct certificate .
 Saqa I'd instituts foreign.no meeting instituts accreditation saqa decission.

Admni /30-39 NC's. Total credit .
 -assessment policy IE099-IE00.regular internal, Saqa decission 10105/14 advance diploma intermediary phase teacher.conduct...
 .n1-n3 national certificate engineering studies.
 -N1: Saqa ID6710, N2 saqa ID 637375,N2 saqa ID 67491..Entrance...
 I'd saqa award diploma N ...
 Ncv assessment plan isat .
 40.7.1.Subject.. assessment task test assignment internal external assignment .assessment tool. Marking memo rebruc ,,. topics subject outcom. Topic 1,2,. ,time and marks allocation 1h marks...examination training training formal. ...t raining exam rwiten permit and time table practice exam days.
 Fundamental subject ..icass .time frame, asservissemnt activities, scope assessment term 3, suggestions allocation .analyse grode..
 Isat integrity practice..time frame .allocation require ..

41.1..required city power vacancies
 Estimated ICT service Research inovation:
 -table of content .
 Graduate internship Training center employee.visitor student apprenticeship visited education technology high school and trade development school skill training .trade education career outcom exhibition engineering education training.
 1.city power vacance 2023.for officer special and variations use career opportunities.
 Training oppoy . metering guyser . light city .training engineering career.

1.1 How to apply for city power vacances 2023..
 student career granted.
 -meter reading submission: St peace college time table engineering electrical Portofolio evidence low consumer panel wiring customer and plant experience design cost power factor demand reader implementation in city power loop .. interlock system.training partnership test . outcomes career student generation power station transmission trading .
 - city power workplace ready to light up career artisan engineering.
 - name of profile
 - city power .
 -manager vacance.
 -city power officer vacancy.
 -city power specialist..

40.10..requirement : implementation
 --SAQA module award diplomat
 -Award diploma n.engineering electrical
 -Award instituts foreign decission saqa
 -registration .award saqa n1,2,3,4,5,6.
 -Award meet documents.
 -Assement assessor saqa conduct moderator
 I'd:
 202001305040/20191130002
 Dhet exam nated:
 201000203812/2004007064381/2011007434332..

40.10.1 requireded of work experience logbook instructions programme code 5090840..national n diplomat.engineering studies electrical
 I'd :90674.engineering studies NQF level6, 360,

credit saqa learner I'd
67043 national electrical
engineering
nqf .level6..learner
name :tshingombe Tshitadi
,surname : Tshitadi Fiston.
Number employeer :
Details compagny St peace
college city power:
Name signature...

Trade test technical
environment
Date : sign...

1.code.wA.0201
Purpose assessment entry
Scope.
Assignment question answer
assessment evaluation
qualifications St peace and
city power metering

Interpret technical drawing:
.evidence checking the
drawing confirm relate
equipment in accordance
stand operationel
procedure reading
information written .
Design db box outlet socket
.

2.undertake numerical
undertaking numerical
operationel geometry and
calculation formulae
Scope .
Terminate and connect
electrical wiring
Date .
Signat
Material conformance
checking and existense new
installation site correct
location.
Specificfical
W0302 checking existing
and new installation .makin
g terminal,connection. .
Specifically .
Manufacture.adjust and
fixing wiring support
tagging and labelling
cable,wiring ,conductor and
connection .undertaking ,
specifications testing of
wiring and conformation to
specific .

Connection for conformance
to specifications.use
language .
- interpreting
circuit,drawing .preparing
work plans in accordance
with legislation and
regularite requireded stand
operator.using measures for
installation testing electric
wiring circuit .testing wiring
enclosure and support
system .indentification
compliance
relevant ,energising testing
installation identify
rectifying.completing report
and documentation using
short circuit comment
relevant
terminology,considerant
plan Ning rescues or
provision of
assistance,isolating
electrical hasard safety
changes controller
operationel parameter ,
Conditions air and
refrigeration electrical
special dues trade that lead
diploma need experience ,
-Construction high voltage
installation .
-substation ,
-pane wiring
Armature winding ,
-A. Running test function
and recording fault and or
equipment status indicated
by buil in test function .
equipment sub assembly,
components connection and
terminal ,
-removing replacing
components and termination
for confoi,isolating
electronic , returning
calibration electronic
equipment sub
assembly.recording ,obtenin
g relevant circuit ,schematic
manual ,isolating
tagging ,and
verified.refitting sub
assembly ,
-specifie sub
assembly,schema electronic
recommissuoni g
electronics equipment
ensure,entering routine

electronic ensure
conformance,
-drawing reading drawing
job . documents
listed.maintenance .single
phase.

-Repaired control loop
system look evidence that
confirm skill.obtain and
interpreting engineering
specificfical technical
information software
hard .data diagraph
historical to system
components and
operationel.
Consultant system other
relevant plant personal with
respect to control loop
characteristics.
Confirming function
malfunction of the system.
Component . checking
operationel character
controleur device,signal
conversion instrument and
final control element .
. identify fault the control
loop for correct
operationel .monitoring the
response of the control
system , using appropriate
fault find diagnosis
technicien and procedure
throuth technical.
Monitoring
Comparing collected
data.operationel.
-engineering .
dismantling..service item
setting appropriate test and
calibration equipment
w..control mode checking
control ..install
commissioner the control
interpre data calculating
control loop
characteristics.install
calibra.access and final
control accessing data
sheet. Circuit.diagramme
engineering.install
sensor..identify cabling
conductor .locating
inspecting ..
Criteria

Trade manufacture seta
merseta sasseta

accreditation .saqa
assessment training

-Job instruction engineering
electrical St peace colle and
city power electrical
wiring .statutory and
regulatory.connection
support..
Method material.test wiring
for approval work
Learning technical
outcome.self checking .,
-activity log sheet.state
following equipment hand
tools . Desoldering tool
soldering fitting welding
pencils

Activity :voltage power
supply.long Bose portable
electric hand drill.drille
EXC.
Flat screwdriver used
driving or fastening positive
slotless screwdriver
is used in driving or
fastening.join two support
lead melted around,side
cutter pliers used for cutting
or terminal wired
testing .soldering .join cable
.chisel.resistance .ms
program..

Copy statement 12; subject n4.n6 ..

Subject condonation award.subject irregularite trade theory .. transcript academic time table..
maximum one,

2.relevant work experience .apply for diplomat, engineering electrical note adminwork experience in
government departments ..qualify development social.energy . education department assessor,
instituts

:
.

-hNd tools label
program.criteria .score .iden
tify.tool..
Terminating and connecting
electrical wiring and
electronic circuit.test
termination . asservissemnt
criteria.
Practice...

Dhet..faculty electrique
engineering.
Completing diplomat
logbook.application
application

-Subject : electrique trade
theory, industrial
electronics, engineering
science, mathematics,
electrotechnique drawing
engineering..
-Logbook cover page.: St
peace college
Exam internal assessment
and external
-application letter :diploma
St peace college assessment
circular irregularite final
award saqa qualifications
award diploma ,
certificate.vist city power

training career inovation
trainings
-Letter from your
employer.career St peace
college trade practices
assessment
engineering.policy practice
school engineering.

-date period work
specifically subject n6;
qualifications
irregularite..regularite
assessment.. Portofolio
evidence
Poe: assessment policy
evidence low

-Candidate work 18month St
peace college time table
trading practice
asservissemnt criteria saqa.
Completed duty .
-Duty city power St peace
career patrol

.
Certificate I'd
-Summary: academic info
n4.n6..
Irregularite assessment
police Poe's relate low .

Uity description	Yes /no
Regulation %= (220-210)x100/210.. Equivalenlent transfo..E2=I2.Z2+V2.. E2-V2=I2.Z2... _estimal 20kva,2500,500v,single phase tfo.winding r1=8ohm .x1=17 ohm. Wining R2=0,3 ohm ,X2 =0,8.. primary voltage 2500 ,. 0,6 solutions E1=2500v,R2=500v. Turn ration N=2500/500... Ration =E2/E1=600/2500=0,2.. apparent power s=20kva,. I= S/E =20kva/500=20x1000/500=40A.. - -referring to secondary side. Ro2=R2+k.square r1=0,3+(0,2) squarex8=0,62 ohm Xo2=X2+k	estimation

<p> Square=0,7+(0,2) square x17=1,380 a) 0,8 lagging Volt.reg v=12 Ro2cos #+I2x0,2 sin @/E2.. Volt reg = 40x0,62x0,8+40x1,38x0,6/60 VR=52,96/500=0,10592,. % VR =10,59.. Secondary terminal voltage. V2=R(1-v2) V2=500(1-0,10592) V2=447,04.. 0,8 of leading. Voltage vR= I2 to square .cos@-I2 X2 sin @/ E2.. VR=40x0,62x0,8-40x1,38x0,6/500. VR=0,02656..%VR=-2,656%,,, Point to key Secondary terminal voltage. V2=E2(I-vr) V2=500(1-0,02656)=513,28v. VR..VR=12Ro2 cos @+,I2Xo.sin@/E2. VR=40x0,62x1x40x1,38xo/500. VR=0,0496...VR=4,96% V2=E2(I-vr) V2=500(1-0,0496),,v2=475.2 volt.. 40.6 management multiple backroung task and interrupt driven system. Clusters system information connection . Monitor display , basic knowledge suggestions reading embaded engineering electrical. -basic circuit theory ,fund arrest ,how to configure pin microchip microprocessor Hard basy trainer bird work station PC running windows Mavis Linus 13v DC motor power main gate gate mplabx cross compiled spreadsheet excell log entry visited internal external St peace college engineering access and city power access meeting agendas menute . </p>	

- project takeaway : how to read analogies voltage compare to implement a capture period measure fundamental digital,open loop and closed loop process control ,
fundamental concept unit introduce process control electromechanic I/O.
Process control: automate process control engineering deal architecture..
Automate process .signal yes control loop processing microprocessor computer fax signal yes, signal yes amp ,signal card , process yes ,tacho meter yrs , open control yes record count positive yes , ,,
40.7 maintence inspection: components program,
-inspectiins check operationel back ,
-inspectiins lighting inspection:bulb regulatority exam control ,transformer hardware and and gasket exterior light,
Electrical inspection: being simple carbon monoxide detector,as well as flashlight and testing equipment timers and photocell, should be inspected and exhaust fan,
HVAC inspection bfiltrrbdict filer

41.purpose. Study case ..St peace college energy rurale and city power energy.
4.1. Electrical grid system design to provide electricite way from it generation to the customer system ground from design kilometre and connection countless complex interconnect.
Workplace workshop practical projection ..lab system fundamental
Test problem requireded..
Eskom and city power ,
-generation electricity ,power plan warn to convert mechanical energy of turbine into energy use generator except solar power , photo voltaic cell ,power plan ,energy fuel. St peace college workplace.
Test lab experimental practical.

Result recording operationel:
kWh ..kV..day

- transmission :large high power line are crucial component .power plant pass through stepped up voltage voltage increase in electricite by transformer .by distance with typical maximum distance.

Result recording operationel test.
kWh .kV.ka day

Reasoning step up transformer are used is when long distance a conducting.long distance.loss energy problem acceptable level,

Estimation Pre test metering transmission grid extra high volt 265 to 275 kV AC , DC joint power station 600Mw, and power station 600-1700Mw,,hydro electric plant 200MW.. transformer industrial power plan and medium size power plan 1500 me..interlock 110kv and up . joint connection distribution grid transformer 150mw power station metering city power plant , 2mw industrial custome power station , solar farm ,eolien farm ,rural 400kw,50kv transfo metring buildings house dispatch .

Estimation const inspection area building infrastructure.

Test lab open views stwich gears inspection fault .circuit breaker fusible ,Relais
Power system of electrical increase descrease note lab
Supply test month average costly
Methods use for switch control circuit during normal operation, permit to switch off on the generator ,transmission distribution equipment.
If faillure occured short circuit heavy current pass.feature switch .
Switch operate in order isolate health system b, discrimination,,switch air break switch medium,
- oil switch they operate in oil arc that occurred fuse joint ,anormal temperature.
Daily week time open ,time close date

- circuit breakers: switch can disconnect the circuit but it is done equipment which open close a circuit under all conditions like ,full a circuit fault condition ba circuit break can operate both manuelly can opere under high voltage type current .
Test day daily month ,

-relay: is basically a device or switch detect fault system then it provides the information to circuits breaker ,
- can operate to prevent the health .
Primary relay is connected
Relay trip circuit ,relay electromagnetic induction test ,
Type of switchigears,2 outdoor type,2 indoor type,66kv ..

Initiy description	Yes not
<p>Test transfer function is networks the magnitude,$1/\sqrt{1+T}$-square.Csquare. phase shift network.. $V_i/V_o=1/RC/J\omega+1/r.c$..test close open system .. Test generation : phase synchronous machine electromechanic energy conversion device operate on synchronous,speed,of rotating magnetic,field , synchronous machine,based energy, synchronous generator . synchronous rotor . - $NS =120f/p$, f the supply ,p is the number of poles in machine, Working principle key principles key features : sychronouse motor asynchronous motor ..self starting , synchronous machines excited machine requireded,machine two applies one DC , synchronous machine</p>	

operate at constant speed called synchronous speed, generator voltage of constant magnitude can be operated, lagging, leading unit, synchronous motor relative, ,
Test daily week time load
Relever trade. Integral derivation day
Equation of sychrouse motor .
 $V = E_b + I_a(R_a + jX_s)$.
Voltage v . E_b back EMF .is armature R_a armature resistance .on system day working duty shift
-resultant voltage: difference between the voltage applied v .and back EMF,
 $E = V - E_b$,. $E_r = I_s.(R_a + jX_s)$
Back EMF generated:
 $E_b = k_a \cdot \Phi_a \cdot N_s$
 Φ_a = constant of the armature, Φ_a magnetic flux perpoles, N_s = synchronous speed of the rotor
 $E_n = v$ normal excitation lagging power factor $E_b < v$ under excited. over excitation.
Input power: input of synchronous motor
 $P_{in} = v \cdot I_a \cdot \cos \phi$ per .phase
 $P_{in} = \sqrt{3} \cdot v \cdot I_L \cos \phi$ 3phase ..
Mechanical bpower in rotor
 $P_m = T_g \cdot N_s$
 $P_m = E_n \cdot I_a \cdot \cos(\alpha - \phi)$.
.
 $P_{in} = \sqrt{3} \cdot v_L \cdot I_L \cos \phi - 3 \cdot I^2 \cdot R_a$..
 $P_m = P_{in} - I_a^2 \cdot R_a$..
A load angle between e_n and v , angle between band I_s ,the is gross torque products . N_a is per synchronous.
- stepper motor Ster angle $\Delta f = (n_s - n_r / n_s \times n_r) \times 360$.
Step angle the angles of rotation of shift . N_s = number of stator / number..poles .Mrs of poles

Motor asynchronous.. $n_r - n_s / N_R$ slop squirrel..star current as..z.c .p.
DC motor machine ..
Resolution 360degre/ beta accurate of stepper .n motor speed.n.

Requireded learner induction machine system engineering electrical
St peace generation GB ..machine system hr resource compatible run

.-transformer three phase
Connecting start delta zig zag.primary wind , secondary winding, . interconnected order phase clockwise power .
 $Y \dots V_P = V_L / \sqrt{3}$. $V_L = \sqrt{3} \times v_p$..
D. $V_P = v_l \dots v_l = p$..

Y.Δ. Turn ration
 $TR = N_P / M_s = V_P / \sqrt{3} \cdot v_s \dots 1/2 \dots \text{step} = 1 / \sqrt{3} \Delta y \dots TR = N_p / N_s = \sqrt{3} \cdot v_p / v_s$
.Delta delta line vol primairy secondary $v_l \sim n \cdot v_l$...line current primary I_L / n .
Delta star $v_l \sqrt{3} \cdot n \cdot v_l$.. $I_L = I_L / \sqrt{3} \cdot n$
Start delta .. $v_l \cdot n \cdot v_l / \sqrt{3} \dots I_L = \sqrt{3} \cdot I_L / n$..
Start start $v_l = n \cdot v_l$ $I = I_L = I_L / n$..
Estimation data 50 Va supply, line voltage 100v , primary turn 500, secondary turn 100, $n = N_s / n_P = 100 / 500 = 0,2$
..vline sec $= \sqrt{3} \times n \times v_{line}$
 $= \sqrt{3} \times 0,2 \times 100 = 34,64 \text{ volt}$
-V phase sec $= v_{line} / \sqrt{3} = 34,64 = \sqrt{20} \text{ v}$.
 $I_{Line} (p) = V_a / \sqrt{3} \cdot v_{line} = 50 / \sqrt{3} \times 100 = 0,289 \text{ Am..}$

$I_{sec} = I_{Line} = I_{Line} (per) / \sqrt{3} \times 0,2 = 0,834 \text{ amp.}$.. construction...
 Transformer voltage regulations..
 Voltage regulation or percentage value by which transformer output terminal voltage varies, up or down from its load value...
 Condition when $I_L = 0$ open circuit to full load $I_L = I_{Mac}$ maximum current for a constant primary.
 , Regulation = change in output voltage / no-load output voltage
 $\text{Regulation} = \frac{V(\text{no load}) - V(\text{full-load})}{V(\text{no load})} \times 100\%$
 - percentage
 $\% \text{ reg (down)} = \frac{V(\text{no-load}) - V(\text{full load})}{V(\text{no load})} \times 100\%$
 $\% \text{ reg (up)} = \frac{V(\text{no load}) - V(\text{full load})}{V(\text{full load})} \times 100\%$
 Estimation transformer has open circuit no load terminal voltage 100 volt and same terminal voltage drop 95 volt on application of connection load transformer regulation 0,005 or 5%
 $\frac{100-95}{100} \times 100\%$
 $V_1 < E_1 \dots E_2 = I_2 \cdot R_o \cdot \cos^2 + I_2 X_o \cdot \sin^2 + V_2$
 $V_2 > E_2 \dots E_2 - V_2 = I_2 \cdot R_o \cdot \cos^2 + I_2 X_o \cdot \sin^2$
 Capacity load $\times 100\%$

40.2 required purpose control lab

-introduction lab is to investigate application of embedded control controller to real time algorithm that employ analog input and analog outputs engineering electrical St peace college time table and city power training days care computer algorithms to implement a closed-loop processor from machinery or motor speed hysteresis conduct system manager security physical.hin feedback can used to linearly inertly non linear process and results in zero steady state control errors.

-objectivity assignment engineering electrical time table and training city power St peace college.

1.general power output to implement system management variable machinery motor supply voltage.

2.implement a tachometer operation using pic timer engineering electrical and trade.

3.develop program code academic to implement a picture

Requireded:

40.1. requireded: case student training practical school and practical schools engineering faculty, saga registration .setat registration St peace registration

Practical school learner secretary help school efficiently by performing clerical task support principal, work in building along with parents and student school often .school mission career, no formal edu post high school college St peace ,job gate welcome visitors, students making appointments, maintaining student record handling incoming and keep the school website event update calendar ..St peace training and city power training to city calendar.

40.2-question how to construct impressive teacher Portfolio learner training . Portfolio evidence.career job .degree scotlande .

40.4.education leadership and management .St peace college and city power management trainings work subject.

-School engineering electrical training practical governance .online master of educational management on line honour leadership innovation.bucheler saga qualifications award degree diplomat learner practical.

-40.5 guide formative training homework qualifications saga diplome d etat homework back laureat

Management school...gestion school established school modernization exigence democratic.registration inscription student generation attributes.card admission

. logiciel

Computer logiciel management schools process tools decreased product task .modules function information school college admnise division ,class St peace , management of campus.management student status, tutorial family.

-Management faculty eny: classes engineering electrical lecture professor and training.planing honorable planning, assessment.yes

-management examination time table.inspection work permit at peace college adm I, exam questions attributes classes evaluation scores,genure reports

In city power external training job

- management schools fee bursary Engineering.step.

.

-principal planification . organisation orientation school professional St peace college manual guidelines, administration school at peace give to learner policy instruction assessment learner to participate in circulum and visited subject.

Test

PC school air time

-functionnality test education program .note globally service global services client . functionality.rapport .quality.

Administration at peace collt give

.the role of school management.school date the class and the power hierarchical function activities roles function rectorat at peace college and charge of training external company government definition.orientation school professional source stress school stress .

The level students adapte situation place social development projects government state teacher inovation democratic acess in the age of leave work children. child care . level diplomat.

Time table admnise evaluation statement report teach class subject counseling portofilio.means transport place .source difficulties for training transport.training social practice apprenticeship engineering course was orientation to the space place long distance initial to monitor, education specialist in St peace college domicile

.filing animation social model

.-the administration workable of Poste school . description post admnistrators supervisor.task school administrator college etablissement good function to teacher vocational and the trainings .

Task functions.budget manage logistics give line to marks reference.

-chargr admnise to coordinner all the process administrator management political and evenement .to resolving conflicts problem school in training external.to response counseling students resolve conflicts

-legislation school subject after assessment Portofilio evidence learner excepter deall misconduct pfense discovery learner in St peace College.

To city power work.

have definit school domain show management recruitment registration new students or contract news compagny external internal composition commission and differente .,

- counsel teacher difficult entry dismissal.procedure.prise ,

Committed management schools circular framework.importance,

- to have definit sanction and reward primary deceive procedure input in case of abandoned post graduate or leavers school to practice or irregularite . sanction in education News legislation.or skill development implementation learner.in St peace college.hr ruling .

-practical school report rwiten efficient parental learner in induction learning student at peace college to going to city power to complete a project class assignments.assessment year report primary tracker run circular summative.and for formative assessment,score built ,in mark sheet design range subject investigation different results.expectation accrose range assessment results.defined and speedly assessor workbook strategy report run regular census data cloud policy,

- week course audiovisual and social class room creation ICT technology digital tools learner critical digital literacy , -international studies in educational inequality theory .skill student basic employee in access to different level level of education academic understood generalite theory outcomes system worked primarily school junior .ethic deontological generality legislation school ruling resourcereality legislation school and principal admnistrators act importance in saqa qualifications citysen to frequently industrial.

-Duty of chief college and department management schools, . political public education state evaluation,control priority norm posterior.level organisation type model office bureaucracy.
flexibility of circulum,
-caracteristic of students and training St peace college to training caracteristic job compagny city power,to give a good operationel results projection goal target day visit,
-management leadership measure political principal objective professionalism in job training caracteristic direction ordering collegial.counseiling director .
Management intermediate division organique function authority administration directives, professional and pedagogy training, execution government, judiciary low . legislation low schools.functionnel authority teach assure orientation coordination pedagogy
-.situation curriculum flexible examen national Central administrative contract d
'autonomie protein project study chief of .changement of authority power of teachers society civil offer influence democratic in circulum assessement.and training examiner















